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Drone Makers Hope to Corner Burgeoning Global Market

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Italy's P.1HH Hammerhead

Unmanned aerial systems developed and built by the United States have dominated the worldwide market since the technology began proliferating 15 years ago.

However, experts predict manufacturers will encounter an increasingly crowded playing field over the next decade, as more companies begin producing ever more advanced systems.

Over the next 10 years, global UAS sales could amount to as much as $39.9 billion, said Larry Dickerson, unmanned vehicles analyst for Forecast International. He projects an additional $28.9 billion will be spent on research and development from 2015 to 2024, with another $2 billion to $3 billion spent on UAV service contracts during that period.

But as the market grows, so does the number of competitors, which could prompt challenges for the U.S. government and defense industry, said Phil Finnegan, director of corporate analysis at the Teal Group.

“From a security standpoint, it means the U.S. has less capability to control the proliferation of these systems,” he said. “From a market standpoint, it means that U.S. systems are going to be facing increasing competition in world markets.”

Even though more companies are permeating the market, only technologically advanced countries with large military budgets — such as Israel and China — will be able to build highly sophisticated and heavily armed drones that are reliable enough for the battlefield, Dickerson said.

Dickerson compared developing a Reaper or Global Hawk-like system to a minor league baseball team moving up to the major league. “Some of them can play well within their own leagues and maybe eventually move up to the majors, but not everyone is going to be able to do that,” he said.

Even as new competitors emerge, U.S. unmanned aerial vehicles have a number of advantages that will keep them competitive, Finnegan said.

“First, they’re proven. Secondly, they’re deployed with the U.S. military, so that ensures the availability of spare parts and continuing upgrades,” he said. “But foreign systems may be the solution for countries that can’t get U.S. systems or can’t afford U.S. systems.”

In recent years, China has developed a spectrum of UAS and is rapidly increasing the capability of those systems, Finnegan said. “They’re quickly prototyping systems, seeing what problems they have and then moving on and incorporating those lessons into a new system.”

Dickerson expects that Chinese manufacturers will capture almost 40 percent of the UAS market over the next decade, or about $15.8 billion. However, that’s only because China has recently begun producing unmanned systems and is playing catch-up, he said.

A RAND Corp. report released in March found that China’s interest in developing its own unmanned systems — especially those that can be used in a maritime environment, such as UAS, robotic surface boats and unmanned undersea vehicles — is growing, as is the funding associated with producing such equipment.

Possible roles for unmanned technology in China include intelligence, surveillance and reconnaissance, border protection, mine countermeasures, electronic warfare, communications relay and humanitarian assistance.

“UAVs that provide better ISR (combined with a more robust satellite network), could improve China’s ability to locate enemy targets at greater distances, offering enhanced capability for targeting anti-ship ballistic missiles and other long-range strike systems,” the report said.

Unmanned systems could also be employed in territorial disputes, especially in the East China and South China seas, which have become flash points for China and its neighbors in recent years, the report stated.

China has already flown unmanned aircraft around the Senkaku Islands, which are claimed by China, Japan and Taiwan but are under Japanese control. After a 2013 incident, Japanese officials said they would consider shooting down foreign drones that enter its airspace. Chinese officials responded that they would consider such measures an act of war.

Chinese-manufactured tactical, strategic and medium-altitude, long-endurance UAS are already in use by the People’s Liberation Army, but the country is creating more sophisticated low-observable, weaponized systems capable of traveling long ranges and striking a target.

Many of those systems are similar to some of the U.S. military’s most advanced drones, such as the Pterodactyl, which resembles General Atomics’ Reaper, and the Sharp Sword, which looks similar to the X-47B experimental flying wing UAS that has been tested by the Navy.

However, the report noted, Chinese drones are subject to similar weaknesses as U.S. unmanned systems, including electronic warfare threats and communication link issues.

Additionally, there have been reports that China lacks qualified pilots and technicians for unmanned systems, Dickerson said. “They’re producing the systems faster than they can actually train the people that they need to operate them.”

China’s fast development of unmanned systems may suggest a growing emphasis on exports, the RAND report said. That China’s UAS will likely be cheap and available to U.S. adversaries should be of concern to the United States.

Some Chinese UAS are already on the market, Finnegan said. “So far their success has been relatively limited, but there’s no doubt in the future China is going to be a big player in unmanned systems, and they will be one of the major ones.”

Dickerson is more tentative when gauging China’s potential in the export market.

“The thing that nobody knows about these systems is how well do they perform?” he said. When the United States started using UAS, there were more crashes compared to today. “There’s a big learning curve. They’re going to go through that themselves.”

China isn’t the only country pouring money into drone development. After years of deliberation, Europe may emerge over the next decade with a medium-altitude, long-endurance UAS.

The United Kingdom, France and Italy plan to sign a funding agreement to develop a MALE system at the Paris Air Show in June, French Defense Minister Jean-Yves Le Drian announced in March. European defense contractors Airbus Defense and Space, Alenia Aermacchi and Dassault Aviation proposed joint development of an unmanned aircraft last year.

Dickerson believes necessity will compel U.K., French and Italian cooperation. None of those countries want to be reliant on U.S. systems, and developing unmanned technologies in Europe would strengthen its industrial base.

“They have to do something to survive,” he said. “The one thing Europeans will do is they’ll put all of their arguments aside if somebody tells them, ‘Look, you either do something or you might as well just write a check to the Americans right now.’”

Italy’s Piaggio Aerospace wants to beat its competitors to the punch and is independently developing its own MALE system called the P.1HH Hammerhead. The Hammerhead made its first flight last year, and the company wants to have a finalized version ready for certification and production by the end of the year, said Rossella Daverio, Piaggio’s senior vice president of communications.

The Hammerhead is a double-engine drone derived from one of the company’s civil airplanes, the P.180 Avanti I. It has a maximum speed of 450 miles per hour and can carry a 500-pound payload. It can fly up to 4,400 nautical miles.

Piaggio in February announced the Hammerhead’s first customer — the Italian air force, which plans to buy six systems. The company also wants to position it as an alternative to a cooperatively-built European drone such as the one planned to be developed by the United Kingdom, France and Italy, said Francescomaria Tuccillo, Piaggio’s senior vice president of governmental sales.

“We are showing the other European countries that instead of talking about [it] … this is a reality. This is a platform already there. It’s already flying. It’s already under test,” Tuccillo said. “So don’t waste your time. … Just come over, sit down at the table and develop this one as the platform for Europe.”

Other countries in Africa, the Middle East and Asia are also ramping up unmanned systems development. South Africa has longstanding drone production capabilities, with manufacturers such as Denel Dynamics selling to Algeria and the United Arab Emirates.

At the International Defense Exhibition and Conference held this February in the UAE, Denel unveiled the

Snyper, a weaponized version of its Seeker 400 UAS. The Snyper is armed with four IMPI-S missiles, which are also produced by the company, said Sello Ntsihlele, its executive manager for unmanned aircraft.

The Middle East would be a target market for the Snyper, especially because most countries in the region cannot get their hands on U.S. armed drones because of export restrictions, he said. “In unmanned aircraft systems there’s a growing interest, and we are one of the few players that can offer an alternative outside of the U.S. and other NATO nations.”

The Seeker 400 wrapped up flight testing in 2014, he said. Weapons testing for the Snyper began this year and will conclude in 2016.

Other less-established companies are still having trouble breaking into the market, their executives told National Defense.

Spanish company Expal has sold its SHEPHERD-MIL system — a micro UAS that looks and flies like a bird — to customers in the Middle East and Europe, said Attilio Perego, sales area manager for the company. However, many potential buyers do not understand the capabilities that small, tactical drones can bring to troops on the ground and would prefer to buy a larger Predator-like system.

“The problem is the knowledge of this type of system,” he said. “From my point of view, [customers] don’t have a clear idea what can be done with this type of system. Some of the customers consider it like a toy, not something useful for operation.”

Shrinking military budgets in Europe are another barrier to sales, he added. “In the Mediterranean area, there are many customers that are interested in this type of solution … [but] at the end of the day, not many will buy it.”

Ui Chung Park, who works in the sales department of South Korean vendor Uconsystem Inc., echoed those complaints. Uconsystem manufactures small hand-launched and bungee-launched UAS that are in use by the South Korean army and marine corps.

But although the company has sold ground control stations to the UAE, it and other Middle Eastern countries remain uninterested in small drones, Park said.

“It’s very difficult to break through,” he said. “In the middle of Asia, like Thailand and Philippines, they like these kinds of products.”

Even when a Middle Eastern military decides to procure small UAS, “there are a lot of competitors,” from AeroVironment’s range of products to the German-made Aladin system, he said.

Newcomers to UAS manufacturing — particularly those from regions without large military budgets, such as South America, Southeast Asia and Africa — will probably hover in the civil and domestic security market, where hacking and electronic warfare will be less of a problem, Dickerson said. These drones could fulfill local and national needs for fisheries and border patrol, humanitarian assistance, as well as supporting coast guard and police forces.

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