NEWS FROM ISDC 2008

Development Work Drives Personal Spaceflight Industry Growth

BRIAN BERGER, WASHINGTON

U.S. companies vying to open up space to ordinary citizens saw total collective revenue surpass a quarter of a billion dollars in 2007, a 50 percent increase over the previous year, according to a new report commissioned by the Personal Spaceflight Federation.

Carissa Christensen, co-founder and managing partner of the Tauri Group, a market research firm that prepared the report, said the findings were based on interviews with 19 Personal Spaceflight Federation member companies and data gleaned from external research. In an interview here, she said she believes the report is the first formal quantification of the economic activity associated with this emerging industry.

The Tauri Group and the Personal Spaceflight Federation intend to update the report annually.

The report, highlights of which were slated for release May 31 here at the 27th annual International Space Development Conference, shows that personal spaceflight was a $268 million industry in 2007. Fully three-quarters of that revenue — or about $206 million — came from "hardware sales, development and support services." Included in this category is the SpaceShipTwo suborbital vehicle being developed by Scaled Composites of Mojave, Calif., for Virgin Galactic. Another example is Space Exploration Technologies' Falcon 9 rocket and Dragon capsule, which are funded in part by NASA's $500 million Commercial Orbital Transportation Services (COTS) space station logistics program and have crew-carrying potential.

Christensen said COTS work by Hawthorne, Calif.-based Space Exploration Technologies, or SpaceX, was the primary driver of the 67 percent growth in hardware and development revenue the industry saw from 2006 to 2007. In fact, all of SpaceX's revenue, including income from the U.S. Defense Department for launches of the company's Falcon 1 small rocket, was included in the total since the technology has application to the company's human spaceflight effort, said John Gedmark, executive director of the Personal Spaceflight Federation.

Christensen noted that Oklahoma City-based Rocketplane Kistler's 2006 and 2007 COTS revenue was not included in the study since the company was focused strictly on a cargo-delivery capability. Likewise, Orbital Sciences Corp.'s COTS work will not be included in next year's report since the Dulles, Va., company likewise is focusing on cargo delivery.

Personal spaceflight services generated $38.8 million in 2007, about one-seventh of the industry total for the year, the study found. This category includes the $20 million-per-seat Russian Soyuz flights booked through Space Adventures of Vienna, Va., and the five- and six-figure deposits New Mexico-based Virgin Galactic and others have taken for future suborbital flights

Finally, about $24 million of the industry's 2007 revenue came from non-spaceflight activities that member companies engaged in to make ends meet. That figure was unchanged from 2006.

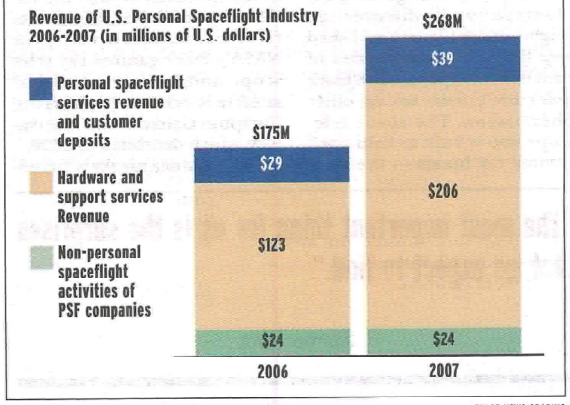
Brett Alexander, president of the Washington-based Personal Spaceflight Federation, said the report paints a picture of an industry still in development. "We are not in the service-providing phase by and large," he said. "But the industry has moved from concept to real development. This report shows that significant development and significant investment activities are taking place. It's an emerging industry and we are in the emerging phase of it."

"There have been so many numbers floated around – $2 billion of investment, $1 billion of investment. We want to be accurate about what the industry is and what it isn't and where it's going and where it's not going."

Brett Alexander

An Industry in Development

More than three-fourths of all revenue associated with the U.S. personal spaceflight industry comes from development work on commercial vehicles intended to carry passengers to space. These include the suborbital SpaceShipTwo, being built by Scaled Composites for Virgin Galactic, and Dragon, a space station servicing capsule with crew-carrying potential that Space Exploration Technologies (SpaceX) is developing with funding help from NASA. All of SpaceX's revenue, including sales of its Falcon 1 small rocket, are included under hardware.



SOURCE: PERSONAL SPACEFLIGHT FEDERATION, THE TAURI GROUP

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Christensen said the federation's member companies secured $1.2 billion in total investment commitments through the end of 2007, with about one-fourth of that money already received and spent.

Individuals and angel investors are by far the biggest source of capital, accounting for just over half of the money raised to date. Various government sources, including federal research and development funds and state and local tax credits, account for another $270 million provided or promised through 2007. Private equity and venture capital firms are the next biggest source, coughing up $250 million, while reinvestment of profits by federation member companies accounted for $12 million.

"There have been so many numbers floated around — $2 billion of investment, $1 billion of investment. The question was: what is the real number and why are we confident in that number?" Alexander said, explaining the motive for commissioning the report. "We want to be accurate about what the industry is and what it isn't and where it's going and where it's not going."

Examining the employment figures included in the report, SpaceX's dominance of this fledgling segment of the broader space industry is once again in evidence.

Of the 1,227 people employed by the Personal Spaceflight Federation's 19 member companies, 470 work for SpaceX. Most of that work force, however, currently is engaged in designing, building and preparing to fly the rockets needed to execute a 12-flight manifest that so far includes not a single crewed launch.

Meanwhile SpaceX's 46,000 square meters of facility space — most of it acquired only recently — is nearly twice that of all other member companies combined, according to the report. However, Bigelow Aerospace, the Las Vegas company working toward deployment of a small commercial space station, is building an additional 18,500 square meters of office and factory space that is due to be finished by 2010, the report says.

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Different Companies, Different Ideas

Vehicles being developed or planned by members of the Personal Spaceflight Federation range from suborbital space planes to space station crew-carrying modules to free-flying orbital platforms such as Bigelow Aerospace's Sundancer. Some companies, such as Space Exploration Technologies (SpaceX), are developing their own rockets to launch their hardware to space; others are relying on partners.

	Vehicle intended for Personal spaceflight market	Company	Prototype/test/ precursor vehicle	Partner vehicles (Company)
Suborbital vehicles	Lynx	XCOR		
	New Shepard	Blue Origin	Goddard	
	RocketPlane XP	Rocketplane		
	"Six Pack"	Armadillo Aerospace	MOD-1	
	SpaceShipTwo	Virgin Galactic	SpaceShipOne	
Orbital in-space vehicles	Crew Transfer Vehicle	t/Space		Long Reach (AirLaunch)
	Dragon	SpaceX		Falcon 9 (SpaceX)
	Dream Chaser*	SpaceDev		Atlas V (United Launch Aliance)
	TKS Capsule	Excalibur Almaz		
Orbital platforms	Almaz Space Station	Excalibur Almaz		
	BA 300	Bigelow Aerospace	Genesis I, Genesis II, Sundancer	Atlas V (United Launch Aliance), Falcon (SpaceX)
Orbital launch vehicles	Falcon 9	SpaceX	Falcon 1	Dragon (SpaceX) BA 300 (Bigelow)
	LongReach	Air Launch	QuickReach	Crew Transfer Vehicle (t/Space)

*Dream Chaser will also be capable of suborbital missions.

SOURCE: PERSONAL SPACEFLIGHT FEDERATION, THE TAURI GROUP

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