



New Company Sets Goal of Settling Mars

New Company 4Frontiers Corp. Sets Enormous Goal of Settling Mars Within 20 Years or So

By **BRIAN BERGSTEIN**

The Associated Press

CAMBRIDGE, Mass. - All companies set goals, but newly formed 4Frontiers Corp. is eyeing some expansive horizons. The company's mission: to open a small human settlement on Mars within 20 years or so.

Sure, it may sound far-fetched. And the company's initial plans are a lot more terrestrial than ethereal, like developing a 25,000-square-foot replica of a Mars settlement here on Earth, then charging tourists admission.

But the people behind the venture are quite serious as serious as the \$25 million they want to raise from investors.

CEO Mark Homnick, a former manager for Intel Corp. who has registered 4Frontiers in Florida, says he has already raised "a couple million" from people he won't name. He hopes for an initial public offering within five years.

That still leaves a lot of questions: Why should people live on Mars? And if it's going to be done, should a private enterprise engage in what would be one of humanity's defining moments?

Besides, what's in it for investors?

Homnick and his co-founders a longtime Mars aficionado named Bruce Mackenzie and a 25-year-old Massachusetts Institute of Technology master's student, Joseph Palaia are ready with several answers.

First, they contend, humankind needs a new frontier to explore, with all the intellectual and engineering challenges that homesteading Mars would present.

Also, who knows the fate of our humble Earth? Will we meet an early end at the hands of an asteroid, warfare, disease or some other catastrophe?

In that case, we'd sure be glad civilization had been preserved by some colonists on Mars and perhaps elsewhere in the galaxy, if all goes well on the Red Planet. That broader vision of space settlement gives 4Frontiers its name: the frontiers being the Earth, the moon, Mars and the asteroids.

"It's the nature of life life tries to expand and tries to adapt," Mackenzie says. "If there's a forest fire in one valley, then all of the organisms in the next valley will slowly creep over the ridge and repopulate that valley. Any species that don't do it eventually die out." Going to space, he believes, is as if "all of earth's life, acting together, is trying to get into the next valley. And the only way we can do it is by

building rockets."

Mackenzie, a software developer, has devoted much of his energy to a nonprofit group called the Mars Foundation, which aims to advance knowledge about how to colonize the planet. But he decided a private venture like 4Frontiers also would be necessary, to drive things forward.

Although President Bush has called for a manned mission to Mars, Mackenzie believes big bureaucracies might never get the job done right.

"It's better to have lots of groups out there, all trying things," Mackenzie says.

Indeed, space is no longer solely the province of earnest astronauts with crew cuts and government-issued uniforms.

Space tourism is on the verge of becoming big business. Space Adventures Ltd. of Arlington, Va., has brokered \$20 million trips for the wealthy on Russian rockets and is taking deposits for \$100 million fly-bys of the far side of the moon. For a lot less money, you can sign up for a quick blast into zero gravity.

But in comparison, 4Frontiers' ultimate goal of an extended stay on Mars would be off-the-charts extreme.

It would take months to get there. Once there, you couldn't kick off your shoes and dig your toes into the sand. Life would transpire in an enclosed space with pumped-in air (unless Martian settlers could pull off the even more speculative feat of "terraforming" the planet by changing its toxic atmosphere.) Venturing outside would require sealed suits.

To begin, 4Frontiers plans to gather patents and engineering ideas that would enable a small crew to land on Mars with home-building materials and the manufacturing capability to keep adding on.

The hot topics would include ways to miniaturize key industrial processes like making plastic or steel and methods for exploiting Martian resources, such as the carbon dioxide in the atmosphere, iron in the dirt or the water bound up in Martian ice.

As the company gains expertise, it expects to sell consulting services to aerospace companies or NASA. It envisions getting work designing Mars sets for movies and Mars rides for amusement parks.

Meanwhile, it plans to construct a mock-up of its Mars home and begin selling tickets to it by 2007. Potential sites in Colorado, Florida and New Mexico are being considered.

The company's business plan estimates these varied projects would bring in \$34 million in revenue in 2010 including \$7 million in gate receipts at the tourist site.

Profits before taxes, depreciation and amortization are forecast at \$1.4 million as early as next year, and \$29.7 million in 2010.

Even if that flies, then what? A \$34 million company probably isn't in a great position to begin launching rockets.

Homnick says 4Frontiers would probably "stay incremental" through the early 2010s, perhaps getting involved in robotic surveys of Mars or asteroid mining.

However, projects like that and perhaps even settling Mars might require some clarity in space law.

The 1967 Outer Space Treaty declared that the "exploration and use" of outer space and celestial bodies "shall be carried out for the benefit and in the interest of all countries." While that's not exactly the traditional language of private enterprise, some space scholars say it leaves room for commercial projects.

(A 1979 Moon Treaty was more explicit, holding that bodies in the solar system should not become the property of any nation, organization or person. But most countries, including the United States, China and Russia, never ratified it.)

Considering all the possible complications, Mackenzie says 4Frontiers' real success might come simply from getting the public pumped about living on Mars. In turn, that could make Washington eager to fund a settlement.

Even if that doesn't happen, he is sure that people eventually will live on Mars and perhaps scores of other places in space.

"It's a question of when," he says. "I really hope we get started before we have an economic decline that delays it. I'd really hate to have something like the Great Depression, or the Dark Ages that lasted several hundred years, delay getting into space."

On the Net:

<http://www.4frontiers.com>

<http://www.marshome.org>

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