



Stanford eCorner

Opportunities in Space: Mars Oasis

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Early in 2002, Musk started doing some research on space. Every other sector where technology was used had improved dramatically but he did not understand why space exploration not done so. He talks about the idea behind project "Mars Oasis" and his visits to Moscow to buy a Russian launch. Following his visit he put together a group of experts to study the feasibility of making lower cost launches in the US."



Transcript

It happened coincidentally, that in the first part of last year I've been doing just some background research on space. Well, let me talk a bit about that. Essentially, I was trying to figure out why we had not made more progress since Apollo. In the '60's we went in from basically nothing. Nothing ever put anyone into space to putting people on the moon. Developing all the technology from scratch to do that. And yet in the '70's and '80's and the '90's we kind of gone side ways. We're currently in a situation where we can't even put a person into lower earth orbit. That doesn't really gel with all of the other technology sectors out there. The computer that you could have bought in the early '70's would have filled this room and had less computing power than your cell phone.

And so just about every sector of technology has improved. Why has this not improved? So I started looking into that. Initially I thought, well, perhaps, it's a question of funding. And that funding can be garnered by really marshalling public support. So one way to get the public excited about space would be to do, maybe, a privately-funded robotic space mission to Mars. So we figured out a mission that would cost about \$15 o \$20 million which isn't a lot of money but it's about a 10th of what a low-cost NASA mission would be. The idea was called Mars Oasis. Where we'd put a small robotic land rover on the surface of Mars with seeds and dehydrated nutrient gel. They would hydrate upon landing and you'd have plants growing in a Martian radiation, gravity conditions. And you'd also be maintaining, essentially, life support systems on the surface of Mars.

And this should be interesting to the public because they tend to respond to presidents and superlatives. This would be the furthest that life has ever traveled and the first life on Mars. So pretty significant. Then when I started looking at launch vehicles; the lowest cost vehicles in US is Boeing's Delta 2 which costs about \$50 million. And that's a bit steep for what we're trying to do. So I made three visits to Moscow, to Russia to look at buying a a Russian launch. It's actually pretty interesting going to Moscow to negotiate for a refurbished ICBM. You know, on the range of interesting experiences that's pretty far out there. But we actually did get to a deal. But there were so many complications associated with the deal that I wasn't comfortable with the risk associated with it.

So when I got back from the third trip, I thought, "Well, why is it the Russians can build these low cost launch vehicles?" Because it's not like we drive Russian cars, fly Russian planes or have Russian kitchen appliances. When was the last time we bought something Russian which wasn't vodka? I think the US is a pretty competitive place and we should be able to build a cost efficient launch vehicle. So I put together a feasibility study which consisted of engineers that have been involved with all major launch vehicle developments over the last three decades. We iterated over a number of Saturdays beginning of last year

to figure out what would be the smartest way to approach this problem of not just launch cost but also launch reliability. And we came up with a default design. And that actually was fortunate timing. That feasibility study finished up right around the time that we agreed to sell Paypal to Ebay. So coincident with that sale, I moved down to LA where there's, actually, the biggest concentration of aerospace industry in the world. It's actually the biggest industry in southern California and much bigger than entertainment and anything else. I was living in Palo Alto for about nine years before that.