

Colonization as PPP

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I feel really encouraged these days with all the attention being paid to Mars. Billionaires and millionaires have their strategic plans to get people safely onto that lovely distinct red planet. I watch the movie *Martian* and imagine the farming of potatoes in situ. National Geographic releases their mini-series *Mars* that's so informative it's slated as essential curriculum for high school students. Elon Musk expects to get there almost single-handedly. Maybe, finally, we'll have enough impetus to get humans living far, far away.

Yet is personal wealth together with a fabulous imagination sufficient for this task? Let's consider by taking a peek at the organization 'Mars One'. This group envisions a one way journey for 4 people to Mars. Apparently thousands of people applied so there's no problem in finding thrill-seekers. The estimated cost is \$6B. Now recently Mars One Ventures AG was purchased outright by InFin Innovative Finance AG. While the reasoning is unclear to this writer the buyout does provide interesting details. InFin shares are trading at €0.16 and they have a market capital of €23.86M. Further, InFin issued 478,887,500 new shares for the purchase of Mars One which likely dilutes the per share value at least until revenue streams come online. But what will generate revenue for new shareholders; why will they invest? Well, much like with movies and mini-series, Mars One Ventures plans on entertainment. They will film their travellers on the journey from neophytes to Martians in a sort of extended reality TV show. Let's assess. The most popular reality show generated network profits of \$270M in one season. That's pretty high and it's for a show that's pure entertainment; it's hard not to love its freshness, vivacity and triumph of the human spirit. Can a show on travellers going to Mars compete with this? And can it maintain its competitive edge for more than 22 seasons so as to generate \$6B? Remember that while Apollo 11 holds one of the largest viewer audiences of all time the follow-on Apollo 17 launch was seen by the networks as routine and they only grudgingly provided a few minutes. Given this, it's not clear to me that the imagination of Mars One and its for-profit effort will result in the colonization of space.

So how can we colonize? One current, popular possibility is the public-private partnership. In this, a private entity raises funds for the design and build of infrastructure. The public entity, usually a government, sponsors the effort thus lowering risks. The lower risks reduce the bond interest rate and also make the bonds more desirable to investors. As well, once built the public entity gives the private entity a near monopoly on the infrastructure so as to guarantee a

revenue stream. One can easily envision this process for a toll-road. Can we use this method for colonizing another world? Well, the answer is 'maybe'. The key to the public-private partnership is the expectation of a constant, sufficient revenue stream. What is this revenue stream in space? In space it can come from space based solar power beamed to Earth, from the mining of ores and minerals or from enabling access via a spaceport. But the investor will need some convincing that there will indeed be a revenue stream. A spaceport on another world needs to demonstrate enough follow-on traffic to pay for its construction. Solar collectors on the Moon need send enough power to Earth. Ore from an asteroid needs a ready market on Earth. And so on. How then to convince an investor? As I see it, this is the role of today's wealthy. They need to emphatically demonstrate revenue streams via pilot infrastructure projects. Perhaps they can also prove via the lack of weathering that the infrastructure could last indefinitely; thus making quite an eventual profit for the owner. As well governments could unite across the Earth so that all share in the risk and the reward of construction as with the International Space Station. With this possibility perhaps we will grow potatoes on Mars. But let's not rely just upon the wealthy and the governments. The success of space colonization depends upon you and you will most profit from it. Or more specifically your children and grandchildren profit. Do you want them dreaming as they lie on the dark cold ground under the deep night sky? Or do you want them 'to boldly go'? If so, be proactive and join in encouraging the colonization of space.

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