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by Patrick Q. Collins PhD - February 20th 2009

Many thanks to everyone for the vigorous and productive discussions.
And congratulations all round for such promising progress.

As many of you know, I'm rather "one-track-minded" about what we should do in space - so I'll say my piece about what I think our direction should be (adding some detailed references for those who aren't so familiar with the argument).

I strongly agree with the comment that the program we propose must produce JOBS. ABSOLUTELY.
The LACK OF NEW INDUSTRIES is a key problem undermining the world economy today.

This means that, to create jobs, the Space Renaissance program MUST supply services that many many people SPONTANEOUSLY WISH TO BUY - at prices they can be sold at.

We are very fortunate, because there ARE such services - space travel services.

Space travel is the only known service for which the demand could grow to hundreds of billions (\$ or Euros) as fast as the vehicles can be made available.

For those who don't know, Nasa already supported this in 1998 in Nasa Report NP-1998-3-11-MSFC - which is STILL not up on its website (!) - (but it is on Spacefuture * below)

Even more luckily we can start with sub-orbital flights which are FAR easier technically (and have been possible in piloted reusable vehicles for 50 years already).

NASA also paid for market research in 2002 which concluded that sub-orbital flights in the USA alone could reach several times the total commercial satellite launch market! (ASCENT study - also in Spacefuture archive ** below)


Also Dr Ivan Bekey (for 18 years the head of Nasa's Office of Advanced Space Projects) concluded that developing orbital passenger vehicles capable of reaching about \$20,000 per passenger is about \$10 billion. (URL *** below) NB this is 8 months of Nasa's budget.

However, promoting Space Travel/Tourism faces 3 popular misunderstandings:

- 1) It's just wasteful expenditure by rich people
- 2) It will damage the environment
- 3) It cannot be commercially profitable

All three of these are wrong.

- 1) Space flight is a profoundly educational and even spiritual experience (as the Overview Institute stress- please get them to join SRI?) Even at high prices, many non-rich people will be able to travel through competitions, grants, etc. But research has also concluded that sub-orbital flights could fall to \$5000 at 1 million people/year, and orbital flights to \$20,000. At these prices, millions will travel every year - and all space activities will be transformed by becoming radically cheaper - jobs, jobs, jobs.
- 2) For those who are concerned about CO2, it is trivially easy to use H2 and O2 electrolysed from water using wind-power as propellants (among many other possibilities - later perhaps including SPS). Enough said. For the longer term, as argued in Marco and Cristina Bernasconi's great paper (url **** below) - and of course Adriano's book: it is ONLY by using the resources of space that we can prevent the Earth's environment being destroyed (or at least "inimical to humans"). We need to get environmentalists to understand this.
- 3) Space agencies have used about \$2 trillion of taxpayers' money so far - with a commercial return close to minus 100%. That is, they have developed much useful technology, and done some great scientific research, but profits earned on commercial sales of services they have developed are tiny, and the capital investment has never been repaid.

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To argue that space travel MUST be done privately - so flight operations must not only be profitable from the start, but it must also earn a venture-capital rate-of-return on the total investment in passenger vehicles - is a double-standard.

It is a false argument used by those who want to prevent the development of space travel.

For governments to invest in developing the vehicles we need is merely for them to play the same role that they play in numerous other industries - reducing the initial risk faced by investors at the earliest, highest-risk stage.

If just 10% of space agencies' budgets was allocated to the civil aviation industry to develop fully-reusable, orbital passenger vehicles, space travel would BOOM.

Of course flight operations should (probably) be private, like most airlines today. But it is perfectly reasonable for government funding of several vehicles - including at least 1 ssto-vtol and 1 tsto-htol - and then (probably) auction the manufacturing rights and operating rights.

(I write "probably" because at a time when most large "private" banks are now nationalised, we cannot be too dogmatic about the best way to do this. There are many potentially successful scenarios for public-private partnership.)

SO, we have to educate people about these 3 facts so that they understand that developing orbital passenger space travel services is an extremely valuable target for investment, because it will greatly stimulate the economy - and young people - while opening the door to all other space activities.

Governments should also be urged to encourage and support the development and growth of sub-orbital flight services in whatever ways they choose:

grants to manufacturers, grants to researchers, licensing and construction of spaceports, guaranteed purchase of services (as anchor customers), "zero-G-zero-tax" rules, directives and funding for civil aviation organisations to accelerate development, grants to set up staff training systems, and others.

Perhaps we could do some brainstorming on "sound-bites" and other ways to help get this across to the general public at Press Conferences and other events.

On, on. on! ☺

Patrick

References

*: www.spacefuture.com/archive/general_public_space_travel_and_tourism.shtml

** : www.spacefuture.com/archive/ascent_study_final_report_executive_summary.shtml

***: www.spacefuture.com/archive/economically_viable_public_space_travel.shtml

****: www.spacefuture.com/archive/why_implementing_the_space_option_is_necessary_for_society.shtml