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## The "New Space Paradigm" brings tide of hope for the future

Perhaps the most famous "paradigm shift" in history is from the ancient idea that the Earth is the centre of the universe to understanding that ours is an ordinary planet orbiting one of a trillion ordinary stars (in one of a trillion ordinary galaxies).

The ancient "Ptolemaic" system had been taught in schools and universities for more than a thousand years, so just think how embedded the idea was in society. Consequently, dislodging it faced huge resistance and took more than a hundred years. Galileo was famously threatened with execution for supporting the new idea even 100 years after Copernicus' death.

I believe we are currently witnessing the strains of the change-over from an old paradigm to a new paradigm of equally great significance for human civilisation. The "Old Space Paradigm" is the idea that "space activities are something in which the general public does not participate." The public are permitted to watch and applaud government using their taxes for "space development".

The "New Space Paradigm" is the idea that "space activities are something in which the general public participates" – and government's role is to help industry supply services for the public to buy.

In any other field but space this would hardly be a revolutionary idea. It's how the economy grows. But in space things are different, and taxpayers have paid \$2 trillion so far – yet space industry employment is small and shrinking in all the rich countries.

(Let's clarify one point: Telecommunications are not space activities. No one watching TV either knows or cares whether the programme arrives via satellite or cable or optical fibre. Space agencies have recently taken to claiming that the more people watch satellite television the greater the success of "space commercialization," but this is self-serving misinformation. It's like claiming that a company's turnover should be attributed to its air-conditioning manufacturer or telephone service company.)

### HISTORY

Walter Dornberger's 1950s book "V-2" describes how his team of brilliant engineers solved problem after problem in order to achieve space flight. On the evening of October 3, 1942, they held a party to celebrate that day's breakthrough – the first successful flight to space—and Dornberger gave an emotional speech recognising that that day would last in history. They then drank a toast to the future of space travel – which they planned to start as soon as the war was over.

Tragically, the Americans and Russians, who took profit of the technology, have still—70 years later – not had the vision to start the sub-orbital space travel services which the pioneers expected to start by 1950 – that is, even before jet air travel services started (in 1952.)

So 70 years later we're still waiting, and employment in the space industry is now shrinking – from 30,000 working in launch vehicle manufacturing in 1999 to less than 10,000 today in the USA; from 10,000 in 1994 to 6,000 in Japan's space industry. And in the EU space industry employment has fallen about 20%.

Europe's space industry leaders have had their heads in the sand for decades, but now at last there's said to be a growing sense of crisis due to the much lower launch costs offered by Chinese and Indian ELVs. But what did Europe's so-called "leaders" expect? That no other country would ever learn to do what German engineers achieved in 1942? Of course, different interest groups try to maintain their good situation. But that our "leaders" can be so short-sighted is more than a little depressing.

In the USA, despite NASA's continuing waste of huge amounts of taxpayer money, the shift from the old paradigm to the new is under way. It's still resisted by old-paradigmers – including even the previous NASA administrator, a dedicated dinosaur – but the change is now irrevocable. NASA is **not** developing a follow-



on to the Space Shuttle. Instead it's offering about 2% of its budget to help companies develop vehicles to carry cargo and eventually crew to the ISS.

Clearly, SRI is on the right side of history. Moreover, SRI's timing is surely perfect. In 2004, SpaceShipOne proved that the cost of developing a reusable space plane that can fly to and from space is less than what NASA spends every day before lunch. Ever since, the writing has been on the wall for the old space paradigm.

It's always uncomfortable in the early days of a major paradigm shift, while old-paradigmers are still dominant in political and economic power structures. So being penniless is part of supporting the new paradigm. SRI's unique support from more than 90 space organisations shows that more and more people understand that the "New Space Paradigm" is coming.

And make no mistake, although the space industry remains tiny within the world economy as a whole the shift from the old paradigm to the new is going to be a massive change. After all, it's the key to enabling the space industry to grow to large scale – possibly even explosively once big business finally gets involved.

It's so obvious that it's astounding that so many people have failed to understand for so long: As long as the old-paradigm space industry fails to supply services that the public wants to buy, it CANNOT GROW. There is no way around this fact.

Fortunately, there is a very popular space service that many, many members of the general public wish to purchase at prices that can be profitable to companies which supply it: space travel, starting with short, sub-orbital hops.

So the way forward is now perfectly clear and unambiguous for anyone who wants to see it: Start supplying sub-orbital space flight services, and build on that success by developing orbital passenger vehicles and orbital hotels. Travel to the Moon is then a simple evolution.

It's no more complex than that. There's no need for governments and their agencies to pretend that there are complex matters to be discussed. There aren't. The technology has been available for decades. The legal issues can be solved as easily as civil aviation issues. To accelerate it as they should, governments should just give generous budgets to civil aviation organisations, and business will do the rest.

(And forget the financial world. Infected by the City of London and Wall Street they have long since ceased to supply any useful services at all. They are now purely parasitic, interested only in extending their fraudulent, zero-sum activities to steal as much of our wealth as possible. By the same token, they're totally redundant. They have no useful expertise that engineers can't provide themselves: selling company shares and raising loans, and aviation-type insurance. Nothing more complex is needed.)

## **THE NEW PARADIGM**

Having delayed the start of sub-orbital space travel services for more than half a century after the first spaceflight in Europe, adopting the New Space Paradigm as fast as possible is now the only way to recover from the lost time and the loss of business opportunities that have been missed as a result. Moreover, Europe is now in an urgent race, because its collective expertise in aerospace technology faces competition, not only from US and Russian space industry capabilities but from challenges by China, India and also Korea, Brazil, Iran and others. Satellite launch is a very, very old technology, and the satellite market is tiny.

Moreover, the current "space powers" have a hurdle to overcome from having lived with the Old Space Paradigm for decades. The "space industry" has very little common ground with the aviation industry, yet the business model for space travel services is the same as air travel, and in order for space travel services to reach their full potential, the expertise of the aviation industry is arguably more important than that of the space industry.

This is because the total knowledge involved in the civil aviation industry is far, far more than just knowledge of the technologies it uses. Vast amounts of detailed information has accumulated about customers' preferences, regional and seasonal differences, international joint ventures, commercial legal and insurance issues, and so on. But, tragically, the space industry, after 70 years, still comprises little more than its technology.



The USA and Russia also have wasted vast opportunities by delaying acceptance of the New Space Paradigm. And having resisted change for decades, Europe in particular now faces a worse situation than ever before. Fortunately for Europe, China and India face the same bureaucratic barriers, so Europe still has a short lead. But it is now literally a matter of Europe's economic survival.

Though many factors have contributed to the appalling unemployment and social problems in Europe, the **lack of new industries** is one of the most fundamental. It takes decades for a valuable new idea to grow into a major industry, so the decades of experience of using a range of space technologies should enable their rapid growth once a profitable direction is understood.

But let us be frank: The "old space paradigm" has brought the Western World to the brink of economic disaster. As industry after industry has flowed to lower-cost countries, the unemployment caused by the lack of new industries able to re-employ the millions of people displaced from working in these older industries has now reached crisis-level, rivaling the 1930s.

Of course, as elsewhere, the problems in European economy are greatly aggravated by the spread of the fraudulent, debt-based money system which is reaching its inevitable climax of un-payable debts. Fair and sustainable solutions to this problem are widely known and available: Positive Money, the Public Banking Institute and the American Monetary Institute all have workable plans – but it's difficult to force support from high-level politicians, many of whom are merely bankster stooges.<sup>1</sup>

However, even when this problem is solved, the need for new industries to employ millions of Europeans, Americans, Japanese and other rich countries' citizens will remain. And for this, space travel services have the potential to grow throughout the present century – eventually perhaps to as large a scale as air travel.

The three phases of space tourism which we can already foresee – brief sub-orbital flights, orbital hotels and travel to the lunar surface – are enough to support exponential growth through the 21st century. Moreover, by sharply reducing the cost of access to space, the growth of space travel will enable numerous other space-based businesses to flourish.

Andrew Nelson, COO of XCor Inc, summed it up well in the title of his recent speech to the 3rd Space Tourism Symposium at Britain's Royal Aeronautical Society: "How Space Tourism Will Enable A Trillion Dollar Space Marketplace." I couldn't have put it better myself, though I might just add: "And nothing else can."

The tide is coming in. It cannot be stopped. Even those who have benefited from ignoring it for so long are noticing that their feet are getting wet. SRI's vision is going to become "common sense" in a surprisingly short time. Europe's economic crisis, far from delaying it, is adding to the pressure for new industries. We are right. Everyone is coming over to our viewpoint.

So we must keep our clear vision, and try to encourage both public and private sectors, while advising on the details as they become clear.

Perhaps one of the greater pleasures is going to be the spread of optimism about the future, as more and more people understand that present-day pessimism is based on blind, short-term, **closed-world** thinking trapped in the "old space paradigm"—and so is demonstrably **WRONG**. The medieval Renaissance must have been a similar source of deep intellectual excitement for the young, who are always restless for something to challenge them to excel. The current young generation is getting tired of having nothing more challenging than computer games. They are our natural supporters once our message gets more widely heard and understood. On, on, on!

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<sup>1</sup> "Credit to Small Enterprise: The Silent Crisis" <http://truth-out.org/news/item/10839-credit-to-small-enterprise-the-silent-crisis>