



A Newcomer into International Space Arena

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Abstract – The Global Space community is now under stress as a consequence of the acceleration imposed to Space Exploration by US President Donald J. Trump. In parallel with national agencies a number of historical or new associations, either scientific ones or just representing specific interests, present innovative technologies and systems to reach Mars, the final goal. An important argument is however scarcely analyzed. It is about how to induce big capital managers to invest in Space Economy. The key point is that present global economy is confronted with a tremendous amount of liquidity. Sovereign Funds are a good example but many other sources have the same problem. All together, they are simply unable, within the present global scenario, to identify appealing targets for huge decadal investments. Space Exploration is by default opening the way to an immense new reality, also in terms of financial opportunities. Money is therefore not the problem. The real problem is to catch the interest of big investors. That requires a tremendous amount of a serious job.

PREAMBLE

The Global Space community is now under stress as a consequence of the acceleration imposed to Space Exploration by US President Donald J. Trump. We are routinely informed by NASA and other major Space Agencies about their new plans and their evolution. A typical example of that is Jim Bridestine recent announcement about the destiny of the foreseen NASA *Moon to Mars Directorate*. In addition, a number of historical or new entities, either scientific or just representing specific interests, present innovative technologies and systems to reach Mars, the final goal. So said, it is interesting to note that two main arguments look forgotten or mistreat. The first is the way to trigger synergy between Space Economy and foreseen huge investments in astronomical missions in L2. Being a complex and fascinating problem it is just mentioned but not treated in the frame of this article. The second argument is about setting up a robust and fair international cooperation, capable to attract adequate non-governmental capital. That implies the solution of the legal conundrum: which law should be valid for the solar system. The complexity of such an argument is the reason of the existence of

2064 Outer Space CLUB

WHY 2064? December 15th 1964, an Italian team launched an Italian designed and built satellite from Wallops Island, Virginia, USA. Italy was the third country with such a score, after Russia and USA. The launch also demonstrated the value of the two Countries friendly cooperation.

The main task of 2064 Outer Space CLUB is to define and support a sound Italian long-range strategy assuring for decades to come, and before the 2064 centenary, a fair Italian participation to growing Spacefaring Economy.

To justify Vision, Mission and Targets of the CLUB is however necessary a previous analysis of mentioned second argument.

Why Space Exploration

Exploration is intrinsic to human beings. Our souls are telling us to go and explore. It also become a mandatory action when there is the need of new or additional resources. Exploration of the solar system is due to both reasons. It is therefore not only an additional and more difficult space program. It is the most audacious humankind project ever conceived and its implementation will stay well beyond the XXI century. How to organize the cooperation among all major space-faring countries and how to protect legitimate common and private interests, are two major challenges that we have to face, now, quickly and rightly, if we want Space exploration to be a successful project, a project generating wealth and peace.

Legal Aspects of Space Exploration

Strange enough, U.S. only are paying an adequate attention to this important problem. Lacking recent opinions and suggestions, I have to use here a few ideas, which I expressed in an opening speech of a Session of the International Space University in Strasbourg on November 30, 2005. As a matter of the fact, at the end of the speech a single, but positive,

comment came from the senior public. On the contrary, I had to face more than twenty young students extremely interested in further discussing and understanding my concepts. Late 2006, ELSEVIER in Space Policy series published the speech.

“An international treaty regime is already in existence, as far as the Outer Space is concerned. Bulky, fragmented, not always universally accepted, and mainly constituted by United Nations treaties, with some impingements due to bilateral or multilateral treaties, such as the ABM and START ones.

The January 2004 directive of President George W. Bush suggests the need for a vast overhaul of this existing legal regime. The Directive, in fact, foresees “an international and commercial participation” to Space exploration to “further U.S. scientific, security and economic interests”.

June 2004, the Commission on the Implementation of United States Space Exploration Policy issued a number of recommendations in its final report, titled “A Journey to Inspire, Innovate, and Discover”.

Many of the recommendations call for greater involvement of, and reliance on the private industry in space operations, as well as for reducing NASA involvement to only those areas where there is irrefutable demonstration that only government can perform the proposed activity.

The Commission recognized that over the next several decades an entirely new set of businesses can emerge, that would seek profit in space. The Commission identified however a critical point in the existing United Nations treaty regime, which sets forth Non-Appropriation Principle, Moon and Celestial Bodies as Heritage of Mankind, and so on. A treaty regime, which makes uncertain the legal status of any hypothetical private company, engaged in the exploitation of space resources.

The Commission rightly acknowledged that this overall issue needs to be addressed, and recommended that the Congress increase the potential for commercial opportunities by providing incentives for entrepreneurial investments in space, and by assuring appropriate exploitation and property rights for those who seek to develop space resources and infrastructures”.

The Commission approach is undoubtedly a positive step. Unfortunately, to modify United Nations treaties one has to face major global implications: legal certainly, but also political, strategic and economic. Accordingly, United Nations have done nearly nothing whilst the White House has approved a number of specific Laws. The consequence is that the legal problem does practically not exist for the United States

while it remains a major one for international entrepreneurial investments and cooperation.

The Double Challenge of International Cooperation and Private Investments

It is important to recognize that past humankind explorations have been also for scientific missions, but mostly to find new resources or for military reasons. Certainly, science has been often supporting exploration and exploration opened new ways to science. That should be the case also for the Solar System exploration. Next generation of astronomical observatories in L2 will enjoy the logistic support of Space Exploration Lunar Gateway. Reciprocally, Space Exploration will take advantage of inSpace Assembly (iSA) and Servicing (iSS) technics developed to assemble in orbit giant observatories not compatible with launcher fairings volume.

However, as the whole of terrestrial observatories is not influencing the actual global economy, so will be for the spacefaring economy. Science is mostly interested in studying the Universe and by default financed by governments via national agencies. Similar will be the case for Defense participation. In both cases, it is matter of limited budgets. A robust exploration of the Solar System is therefore possible only if private investors will inject adequate amount of money. However, why should investors risk huge capitals in such a long term, complex, risky and unreliable venture? The story of the last thirty years of the global economy could provide the answer.

Quick Look at Last Crisis and Present Status of Global Economy

In the last decade of the 20th century, the USA economic system was highly leveraged. At the same time, Wall Street was facing a growing demand for huge investment opportunities, by sovereign funds and big private entities.

As the real economy (agriculture, mining, manufacturing, building, commerce, services...) was not offering investment opportunities as required, Wall Street managed to elaborate new financial investment tools, and implemented the so-called Wall Street deregulation. The Pandora's Box was open, and the derivatives market blossomed. Futures (such as bond futures, rate futures, currency futures, and so on) together with subprime mortgages, and swaps (1994-invented by J.P. Morgan) became typical tools for large financial investments. Because of derivatives invention, also blossomed new entities, such as clearinghouses, and similar structures. In real terms, the worldwide financial market became just a gambling organization.

In the early years of the new millennium, the too-much leveraged economy of the USA triggered the collapse

of the housing bubble. That induced the quick declining in a row of residential building and holding spending, and general business investments.

It also became suddenly difficult to borrowers to refinance their loans. That had an immediate effect on subprime mortgage system. September 15th, 2008 Lehman Brothers Holding filed Chapter 11, triggering by that a domino effect, which rapidly induced a vast and long crisis.

As a side effect, the crisis exacerbated the problem of excess liquidity. National economies are therefore still starving in an ocean of global liquidity. Why sovereign funds and similar sources of liquidity are so reluctant to invest in Western World economies? The dimensional, political, and social aspects of the conundrum are so complex that still now, ten years since the Lehman Brothers Holding bankruptcy, no serious literature about that is available. There is however a factor that can be rapidly analyzed. Nobody did it yet.

Western industry operates in mature economies and serves mature markets. By consequence, it is no more a long-term opportunity for huge investors. The automotive sector is a perfect example of such a situation. It is still a big portion of western economy but it cannot grow anymore. Another terrific case is that of Western companies serving the nuclear power plant global market. Most of them just survive thank to large financial backing by their governments, waiting for the miracle of huge contracts from East Asia markets, which in turn are rapidly developing their domestic nuclear industry, on the basis of best technologies transferred to them by the mentioned starving companies.

In practical terms, only the GAFAM type companies are rapidly growing. However, as they are rather generating than absorbing liquidity, they are just more increasing the headache of the global excess liquidity.

If that sketched picture of the Western World economy is even partially acceptable, the next global crisis, already flashing at our horizon, could be an epochal crisis for a number of generations. It is therefore the right time to implement an economy strategy based on decadal large investments, so to use global excess liquidity, and make it the tool to generate a new long-standing global wealth.

Solar System exploration is the perfect tool to reach such a vast goal. If one considers the Solar System as a further continent with endless resources, major potential stakeholders are by default sovereign funds, private large funds, venture capitalists, and multinational concerns such as mining corporations, pharmaceutical industry, tourism organizations, and any other worldwide enterprise. They have money and they need to invest it. Therefore, money is not a problem. The real problem is to catch the interest of big investors. That requires a tremendous amount of serious studies and transfer of reliable information.

2064 OuterSpace CLUB - Vision and Actions

Exploration of the Solar System is a great, costly and risky venture. It also is a long-term project, with heavy front-end investments and big but late payback. To obtain either governmental support or large private investments it is necessary to elaborate and continuously update detailed and reliable plans and long-range geopolitical and economic forecast. It is a hard job, however feasible if there is a large team of senior experts covering a wide span of scientific, technological, legal and geopolitical areas. Unfortunately, it is not the case in Europe. In Italy, today, exist high-level Space capabilities, but fragmented as monads. Our CLUB overcomes such a low efficiency situation.

All the members of 2064 OuterSpace CLUB are free-lance senior experts. Namely independent from pre-existing governmental or private interests. In addition, each member has a network of specific specialists to face unexpected problems.

The Vision of the CLUB is that human and robotic Solar System exploration is compulsory to advance knowledge of the Universe and to develop a spacefaring economy complementary to present global economy.

Its Mission is to assure adequate Italian participation in both the scientific and economic ventures.

Next targets are:

- Italian bilateral partnership with USA for Lunar Orbital Platform, and for missions in Sun/Earth L2
- Italian autonomy in terms of launch capability of small payloads.

The CLUB has a Directorate, and Operative Groups (OG). Directorate assures conformity of Groups activity with CLUB's mission and targets, as well as synergy among the Groups. Each Group has a maximum of five members. One of the members is elected leader of the Group. Each Group elaborates how to accomplish its own mission. Each Group may use External Advisors as far as appropriate.

Now the CLUB has four Operative Groups:

OG 1 – Solar System Exploration <Enrico Flamini>

OG 2 – Scientific Support to Space Exploration <Piero Spillantini>

OG 3 – Enabling Technologies <Claudio Sollazzo> -

OG 4 – Italian autonomous transportation capability <Mauro Balduccini>

Further OGs should soon be available.

More information about the CLUB, and its members, structure and rules are available on the CLUB website: 2064outerspace.com

The kick-off meeting was on March 7, 2019. The CLUB is now supporting the elaboration of long-term Space programs of Italian governmental and industrial entities. Contacts with US partners are furthermore going on.