

Expansion of the Civilization in Space: A Moral Issue

By Adriano V. Autino

ABSTRACT

Several philosophers (including Hawking, Lovelock, and Ziolo) warned about the implosion of civilization in the course of this century due to the unsustainable growth of humanity within the closed system of our mother planet. The global crisis, which began in 2008, is a deep crisis of resources, initially manifested as a financial crisis. Such a crisis could be one of the cyclical downturns, analyzed by Nicolai Kondratieff, which occur with a frequency of about sixty years and it could last 20 years. At this critical stage of human history, a nihilist thread is gaining momentum – so-called degrowth – in which nature is taken as an ethical model and is increasingly revered, while the value of human life declines. These philosophies are proposed as love and respect for nature, but they threaten the survival of humanity. Proponents of astronautics, ever looking for *rationales for space*, must focus on a counter-philosophy: that the expansion of civilization in space is a moral issue. Not expanding civilization into space would be a real, specific suicide: a rapid decline and the end of humanity as a cultural species. Such a waiver would therefore be a crime against humanity. Economic and social growth is absolutely necessary for the development of a fully inclusive human society, free and democratic. The resources of the solar system are virtually endless, covering human needs for several millennia. Therefore, while the modern Savonarolas advocate a season of thrift and *wise administration of misery*, we should learn to handle the large abundance and freedom that we will find in space. The only possible evolutionary step is to step into space (Ehrlicke, Hawking, Ziolo, Wolfe). Humans are midway in their journey from animal status toward full human status, emancipated from the natural behaviors of murderous ferocity and exploitation. This step can be completed only by expanding in space, and accessing a platform of virtually infinite resources and energy.

Refutation of the De-Growth Doctrine

In this time of global crisis, those who feel responsibility toward their own species and its social evolution sometimes face a feeling of frustration and helplessness. It is disheartening to see some philosophers advocating a path of decline to counter what they view as unsustainable development. They would abandon so-called consumerism and promote a kind of *moralization* in society, through mass conversion to a sort of existential Franciscanism. They accept the prospect of a socio-economic degradation, if not of a real Armageddon, which is involved by the *de-growth* option.¹ In the extreme, this purported moral action would place nature and the environment above other human beings.

Unfortunately, the post-industrial society, which aimed for more ethical, democratic, and libertarian socio-economic models, is now facing the perverse effects of the gradual disappearance of industry (1000 enterprises per day were closed in Italy, during 2012).² The de-growth ideology has a heavily depressing effect on the

¹ Serge Latouche, *Petit Traité de la Decroissance Serene* (Paris: Mille et un nuits, 2007).

² See http://oivcamcomca.blog.tiscali.it/2013/01/25/unioncamere-la-crisi-determina-la-chiusura-di-mille-imprese-al-giorno/?doing_wp_cron.

economy and, ultimately, it is therefore a cause of regression and civil involution. Claimed as a highly moral option, the de-growth is therefore highly immoral, because it acts not to reduce suffering in general, but to increase it, not to decrease social fear but to increase it, not to provide more job opportunities and self-realization to people, but to decrease all of these.

The de-growth world view does not consider the acquisition of resources where they are in abundance: in space! Many of the de-growth advocates are prey to the syndrome of the pre-Copernican closed world. They simply do not see the evidence because they have a well-barricaded mental bureaucrat (as Robert Pirsig wisely wrote),³ which imposes almost immovable blinders on them. Many are afraid of change and in particular they see space with horror. Many see de-growth as an opportunity to get rid of capitalism or even to destroy it. Many see the scarcity of resources and the perspective of de-growth as a great opportunity for the triumph of the supposed moral criteria of frugality and modesty. For the pre-Copernicans, there may soon be a Copernican revolution,⁴ which will make them open their eyes.

Moralistic Exhortations Are Not the Real Drivers for Change

All moralizers and/or promoters of revolutions rely on some kind of change in people's attitudes. But the great social changes never took place due to *moral awareness* campaigns. The true factors of change act at a structural level. A real ethical advance occurs only when, in the society, the level of fear and insecurity decreases and, in parallel, the chances for social growth increase, or, to say it with Maslow,⁵ people achieve easier ways to meet their basic needs. The fact that the level of ethics tends to grow up in such conditions testifies to the positive background of human nature, or at least the cultural profile of the humans of the twentieth and twenty-first centuries. Once they have solved their basic needs, the majority of people do not tend to get lazy and to deprave themselves, as the proponents of coercive social models maintain, but aim high to art, culture, solidarity. A few of the super-rich still prefer spending one million euros for a week on a yacht, refusing at the same time to support culture and art, but they are not the majority. Many wealthy people would be available to support progress, if the proper information, links, facilitations, and solicitations were provided by public institutions.

Idealism, Coercion, Freedom

The century of great authoritarian collectivist ideologies – Fascism, Stalinism – is now behind us, but the established practices of the single mindset imposed by various coercive methods are characterized by high social inertia. Those who own or believe they have insights into possible social improvements strive to achieve 100% approval of their ideas. Often, when they cannot achieve this, they turn to using force and coercion. So, from the point of view of the progress of civilization, the moral issue concerning our discussion, every social process of coercion, and any subsequent revolution results in setbacks, because it reproduces in large proportion

³ Robert M. Pirsig, *Lila: An Inquiry into Morals* (New York: Bantam Books, 1991).

⁴ A. V. Autino, "The Copernican Evidence - Requirements for a Space Age Philosophy", IAF Paper No. IAC-02-P-P.23, 2002, 53th International Astronautical Congress, 10-19 Oct. 2002, Houston, TX, http://www.spacefuture.com/archive/the_copernican_evidence_requirements_for_a_space_age_philosophy.shtml.

⁵ http://en.wikipedia.org/wiki/Abraham_Maslow.

the anti-ethical behavior of murder, brutality, and oppression. Idealism, as demonstrated by the history of the twentieth century, is therefore quite dangerous, because it is strongly inclined to adopt a coercive character. However it would be quite wrong to abandon idealism or any ideals. Ideals are in fact necessary for the progress of civilization.

There is, however, a relative diversity among ideals, as far as the danger of coercion is concerned. Indeed, there are ideals which, by their very nature, need to be shared by 100% of the population, so they hold the seed of coercion in their DNA. The more absurd a theory is, the more it requires the use of coercion in order to become a state law. Socialism based its ideology on a much more logical foundation: equality and social justice. However the applied recipes – nationalization of the whole economy, just to mention the most striking example – required 100% popular support: the Stalinist faction then took over when such consent was not reached through the direct democracy of the people's councils (Soviets). Leon Trotsky, the proponent of a democratic and mixed economy (public and private) and a multi-party political system, was exiled and then murdered, the people's councils were transformed into a mere instrument of control by the bureaucracy in power,⁶ and the country entered the tunnel of dictatorship, with the consequent annihilation of any aspiration to better social relationships and a moral devastation that has had little or no analysis.

In general, when ideals are applied to closed and restricted environments, characterized by scarcity of resources, ideals tend to coercion. Nowadays, the symptoms of what could be the large-scale application of the de-growth ideology are already visible. The conditions are all in place. A close and narrow environment: the world populated by more than seven billion people. The inability to achieve 100% of the vote: granted that by flattery and moral exhortations the de-growth party could get an initial majority democratically. A population reduced to poverty and hopelessness can only rebel, later. Any social proposal based upon restriction of space and resources can only end in coercion and authoritarianism and soon the alleged equitable sharing of scarce resources will end up the pockets of the managers at the expense of the managed, as has always happened in history.

The astronomical expansionist ideal, in contrast, proposes a lot more freedom, because it tends to reduce the social pressure and simultaneously to increase the resources available for development. It does not work, then, on a subtraction of resources, since it is the only option that does not work at zero-sum. It does not necessarily require 100% of the vote: whoever does not want to migrate can be shut in safely at home and still get great benefits in the context of the economic growth brought by the process of expansion and the use of new resources. The astronomical expansionist ideal requires, of course, a good level of consensus, but aims primarily at the consent of the skilled and those with a high cultural level, businesses, and scientific-technical players. It develops a political proposal, at international level, to all the governments of at least the spacefaring countries, inviting them to adopt policies to support the development of commercial space

⁶ Isaac Deutscher, *The Prophet Outcast: Trotsky: 1929-1940* (London: Oxford University Press, 1963).

travel. No doubt, seven billion people are too many for one planet. There are only two alternatives:

- a) accept the prospect of a civilization implosion, which can happen in different ways, either as result of the generalization of a suicidal de-growth strategy or keeping on growing in a closed system;
- b) expand beyond Earth's atmosphere, initially into the geo-lunar space, and in time into the rest of our solar system.

Of the two, the only moral option is the latter, because it is a harbinger of civil and cultural growth for humanity,⁷ as well as potentially improving the Earth's environment for the benefit of other living species, animals and plants, with which we share this planet.

Value of Human Life and Religion

In order not to repeat here other concepts already presented in previous writings, I refer in particular to two works, the first one published in the *Journal of Space Philosophy*, where I discuss extensively the urgency of the development of the astronautic humanist philosophy and in particular the primary philosophical reasons in support of the imperative need for humanity to expand into outer space - "*If we are not humanist, we do not need space*".⁸ As extensively argued in the paper above referred, and in others, the priority ethical principle is the humanist principle, the supreme value of human life, the highest expression of nature and evolution – in spite of all our faults, as a cultural species that is just half-way towards a fully human status. The second reference is the article "The Value of Human Life."⁹ Religions of all tendencies sometimes defend some humanist principles, but generally give priority to other concepts, such as deity, nature, esotericism, a social class, or whatever.

Note the etymology of the word "religion". There are two meanings commonly recognized: from the Latin word *religare*, which means to unite people around a faith or ideology, and the word *religere*, which means to choose and take care, to pay attention. A religious community is therefore a set of people who share a philosophical orientation (not necessarily oriented to the divine) and observe with care and attention its precepts. The theist religions, assigning the state of perfection to gods and relegating man to the *human condition*, by definition imperfect, knowingly trace a path of growth *aiming to an in fact unattainable perfection*, attributed to the gods (omniscience, omnipresence, etc.). Mankind is thus indulgently encouraged to remain sinner, murderer, bully, *human*, therefore imperfect.

The churches' catechesis in general, however, appears mainly oriented to the stories of individuals and not to social aspects. First of all, the fate of civilization on the edge

⁷ Patrick Q. Collins and A. V. Autino, "What the Growth of a Space Tourism Industry Could Contribute to Employment, Economic Growth, Environmental Protection, Education, Culture and World Peace," http://www.spacefuture.com/archive/what_the_growth_of_a_space_tourism_industry_could_contribute_to_employment_economic_growth_environmental_protection_education_culture_and_world_peace.shtml.

⁸ A. V. Autino, "Facing the 21st Century's Civilization Challenges by the Tools of Astronautic Humanism", *Journal of Space Philosophy* 1, no. 1 (2012): 63-65.

⁹ A. V. Autino, "The value of human life", http://www.tdf.it/2005/vita_eng.htm.

between the cultural post-Copernican leap to the stars and the implosion would be well worth being discussed by religions. While the naturist and animalist religions appear totally disinterested in the value of human life, the main churches – Catholic, Protestant, Buddhist, Judaism, Hinduism, Islam – are nominally respectful paladins of human life. As far as the religions of the naturist, vegan, animalist, strand, it would be reasonable to expect that their adepts took into consideration the space expansionist option, which would lighten the burden on the terrestrial environment by the weight of our development. However, since these people are often strongly opposed to science and technology, the discussion with them is still quite difficult, partly because they often refuse reasoning that they deem too complex.

Thus we sense the urgently needed birth of a great *secular humanist religion*, which puts in first place the objectives of protection of human life and the continuation of civilization. Such religion can easily coexist with traditional religions and will not solicit any conversion: rather it will ask its members to bring the good principles of astronomical humanism within religious or political communities, so that a good number of people (not necessarily 100%!) take active responsibility for it.

The Cultural Faults Produced By Antihuman Ideologies

In the aberrant conception of the naturist ideology, nature is taken as an ethical model, rather than studied to understand its systems. The predators, in particular, are admired for their beauty and even in this case there would be little harm in doing so. However, the obsessive reiteration, particularly evident in social networks, of such admiration, brings out comments on the verge of idolatry. The predator is taken as a model, since it kills to survive and it does it with innocence, lacking the capability to reason. This concept leads weak minds (of which, unfortunately, there are never a few!) to exalt and enhance their poor reasoning skills to a “more natural” state and closer to the innocent ferocity of the predator. The continuous use and abuse of the term *natural*, opportunistically and improperly used by many manufacturers of all kinds of products (food, cosmetics, detergents, etc.), testifies to the strong and very broad trend existing in society, according to which everything natural is good and what is instead the product of human ingenuity is bad (sophisticated, thus in their conception harmful). In this way the very concepts of science and technology are belittled and demonized, promoting and accelerating the cultural decline of humanity. The expansion in space, adventure that must necessarily be based upon a solid scientific paradigm, is the only option that can reverse such an absurd trend and return intellectual commitment to the role and the importance it deserves. It will be a social process of titanic proportions. Not surprisingly we talk about a renaissance of humanity in space, that is, the Space Renaissance.¹⁰

The Stakes: A Solar Civilization or the Return to a Stone Age

What is at stake is more than epic. We at Space Renaissance are not the only ones talking about the danger of a civilization implosion. Prior to our movement,

¹⁰ A. Autino, P. Q. Collins, A. Bynum, S. Moss, F. Stratford, N. Jarvstraat, M. Martin-Smith, M. Dudziak, K. Ford, D. Walt, A. Kotarski, A. Woods, V. Werner, and A. Volkonskiy, “The Space Renaissance Manifesto”, Approved by the Space Renaissance Initiative 15th Meeting, held August 29th 2009, http://www.spacerenaissance.org/papers/The_Space_Renaissance_Manifesto.pdf.

philosophers such as Krafft Ehrlicke¹¹ and Robert Pirsig (the latter very old but still alive) have addressed the issue of human evolution, in different terms of course, but in some ways consonant. Contemporary philosophers such as Paul Ziolo,¹² Stephen Hawking,¹³ and James Lovelock have spoken out about the probable implosion of civilization within this century, if it does not expand into space. The highly moral character of expansion into space is more and more obvious and it should now overflow from the still restricted numbers of astronomical humanists in society. Always on the brink of global conflict, civilization is screwing in a continuous crisis, which destroys jobs and know-how at an impressive rate.

Nicolai Kondratiev,¹⁴ a Russian economist who died in a Stalinist gulag, analyzed the history of economics since late 1700 and found a cyclical pattern that sees deep crises lasting roughly twenty years, with a frequency of about one every 60 years.¹⁵

Prof. Ziolo, of the University of Liverpool, analyzes the five cycles of Kondratiev from the late 1700s, and makes his prediction for a hypothetical sixth cycle:

The existence of these cycles or Kondratyev waves of an approximate 52-year duration prior to the Industrial Revolution remain contentious issues, but their structure emerges clearly during and after the 18th century. We have so far experienced five major Kondratyev cycles, each of which was initiated by a wave of “core” technologies. A sixth cycle is imminent, and its effects are already beginning to be felt. According to Tylecote (1993) the core technologies that initiated each of these cycles are as follows:

1. Water (Britain) beginning c. 1780-90,
2. Steam Transport (Britain – U.S.), beginning c. 1828-32,
3. Steel and Electricity, c. 1874-80,
4. Fordism, c. 1913-18
5. Microelectronics, c. 1973-83

The upcoming sixth wave, advocated by Ziolo, would be triggered by *GRAIN* technologies (Genetics, Robotics, Artificial Intelligence, and Nanotech). But this prediction was made in 1995, and none of the (terrestrial!) mentioned technologies has triggered a new industrial revolution so far. It is more than an educated guess, by now, that any innovation, if confined within the limits of our planet, it is unlikely to reverse the trend. The current crisis, because of its global nature, its root causes, and its combined effects – the scarcity of resources, job destruction, the immature conflict for resources and energy, environmental decay – could be the last and could lead directly to the implosion of civilization. In contrast, the Space Renaissance,

¹¹ Marsha Freeman, *Krafft Ehrlicke's Extraterrestrial Imperative* (Toronto, ON: Apogee Books, 2009).

¹² Paul Ziolo, “Futures”, http://www.spacerenaissance.org/papers/PaulZiolo_Futures.pdf.

¹³ Stephen Hawking, Interview with BBC, <http://news.bbc.co.uk/2/hi/science/nature/6594821.stm>.

¹⁴ http://en.wikipedia.org/wiki/Nikolai_Kondratiev.

¹⁵ http://en.wikipedia.org/wiki/Kondratiev_wave.

acquiring new resources and energy for development, would play a decisive role as a catalyst for an industrial and cultural revolution without precedent.¹⁶

The industrialized West, nowadays largely post-industrial, is the holder of a huge moral responsibility regarding the fate of mankind. The only answer that the so-called advanced countries have been able to provide so far is still and always war, to try to stem the violence in the most primitive countries, which have not yet experienced a true industrial revolution. The people who gave birth, in the last years, to the “Arab spring”, nowadays reached by global information, became aware of the living standards of the advanced countries and legitimately aspired to their social growth. But their bourgeois revolution, while overthrowing the most oppressive and corrupt dictatorships, runs the risk of jumping from the frying pan into the fire, into the hands of Muslim fundamentalism. In the absence of a true industrial revolution, no wizardry can add the salt of democracy in tribal societies, let alone impose democracy by military force. The West finds itself caught between a rock and a hard place: giving military support to the Arab revolutions often means fighting on the same side of the Taliban militias or Al Qaeda! Supporting the hated dictatorial regimes guilty of appalling massacres of civilians, on the other hand, is not possible. It should also be noted that when bombers come in to play in the revolutions, though reducing the military force of the *ancien regime*, the effect on the population and its capacity for self-organization is often quite depressing: if others do the revolution, it is no longer a popular revolution! The people are no longer the subjects who win and build democracy, but they become a people who are weak and unorganized, going back to split into tribal factions, militias, and bands of armed marauders. It is therefore becoming clearer and clearer that Western military power, in this situation, is not only useless but more and more harmful. From the economic point of view, while the wars of the last century often had a positive effect on the markets, today’s wars have completely the opposite effect. The price of oil undergoes new wheelies at any hint of war and the effect on a global economy already exhausted by the crisis is further depressing.

Giving Up Expansion into Space Is a Crime against Humanity

Should our civilization renounce expanding into space during the current century, those responsible for this decision would be guilty of a true specific suicide (suicide of the human species). In fact, at the end of a path of de-growth, only disappearance can be found. The waiver of civilization’s expansion into space would have a high cost: a rapid decline and the end of humanity as a cultural species. The waiver of expansion into space would therefore be a crime against humanity, far worse than all the crimes perpetrated in the past, including the Nazi holocaust and the Stalinist purges. Economic and social growth is absolutely necessary for the development of a human society, fully inclusive, free, and democratic. The resources of the solar system are virtually endless and can cover human needs for several millennia to come.¹⁷ Of course human expansion into space is a necessary but not sufficient condition: in order really to grow up in ethics, a good amount of strong will is needed. But, reading human history through realistic glasses, we can see that ethical

¹⁶ A. V. Autino, A. Cavallo, and P. Q. Collins, “Three Theses for the Space Renaissance”, 2011, <http://www.lulu.com/commerce/index.php?fBuyContent=10003567>.

¹⁷ A. V. Autino, “The Fifth Season – The Space ‘Bingo’ Surprises: Very Profitable and not Obvious Gifts of Space”, 2005, <http://www.tdf.it/IC1/acta/aa/IAC05E1P03.pdf>.

advances have occurred each time life conditions have improved. The moral imperative, thus, is to create the resources and energy platform necessary for a giant cultural leap. We should learn to manage abundance, something for which we have not even a word. The word *economy*, in fact, historically means *management of scarce resources*. We need a new word to signify the *management of abundant resources*.

One Possible Choice: Aim High!

Given their great responsibilities, having seen the failure of international politics and of the military strategies, what remains to be done by Western countries to get out of the quicksand of the global crisis? As also happens in everyday life, we often find ourselves insisting on known behaviors, even though they may prove to be completely ineffective or even counter-productive in a given situation. In the case of states' policies this is true to the nth degree, so many are the powers and easements established in the bureaucratic structures that govern the great democracies. However, if we stop and think sometimes, we will see that we own other instruments, much more suitable to solve the problem that we are worried about and that we are not using them only because we are caught in compulsive behavior, which prevents us from considering different solutions. For some years now there have been talks about a possible *clash of civilizations*. And of course, in this comparison, the West considers itself superior. But how should such claimed superiority express itself?

The territory on which the West could prove its superiority is not the military one, as was amply demonstrated. Indeed, by insisting on the military option we will prove exactly the opposite: They kill us, we kill them. The fact that we do it with the most technologically advanced weapons surely does not certify our moral superiority.

Rather, the territory on which the West should qualify is the moral one, accepting the most critical challenge of all times: leading humanity out of this terrible crisis, which otherwise might be its last crisis, the definitive one. The real moral superiority is in civilian culture, science, and technology. The competition can be won by demonstrating cultural superiority, conquering new spaces and new resources for the whole of humanity. This is the real moral challenge of this century. There are indeed many ways to win without killing and destroying. Non-lethal weapons systems¹⁸ are for sure a method that should be developed further and faster. But going out to look for new resources and energy for all of humanity, to get out of our beloved Earth, to create new space for living and working, things that our civilization desperately needs, is for sure the best and most urgent choice.

The Western countries have everything they need to give this substantial contribution to humanity. Why keep on waiting?

¹⁸ http://en.wikipedia.org/wiki/Non-lethal_weapon.

Global Democracy Possible Only In the Presence of a New Industrial Revolution!

In a recent article,¹⁹ *“The social turmoil in Egypt are new evidence of the risk of implosion of civilization,”* Rino Russo, along with myself, wrote:

The current despairing need of industrial development of the regions defined “pre-industrial” like Egypt, is counterbalanced by the equally desperate need for new industrial development of regions defined, with much complacency and carelessness, “post-industrial”. There is no valid method to add the salt of democracy to countries characterized by strong aspiration to growth! As noted by the Nobel Prize Amartya Sen, the information is much more important than gunboats, and the poor and underdeveloped “wake up” only when they get the information of the higher standard of life that exists in other countries... For sure, from the point of view of ethics, it makes a deep impression that the Egyptian army, in order to defend democracy against Islamic fundamentalism, stains itself of the murder of hundreds of people. But it should not be surprising. In these countries the consideration for the value of life has not even yet reached the lowest (and declining) level that exists in the industrialized countries. Even in industrialized countries, in fact, democracy is in a state of serious crisis, where the political parties and the various ideological currents do not have the capabilities for issuing true and strong development projects. That’s why the civilization is living in conditions that prelude to a serious decline of general civilian and ethical values: because of the social processes in place, which collide with political leaderships completely incapable of guaranteeing the industrialization of emerging countries and re-industrializing the advanced countries. The development of the industrial economy is a key factor. Without growth there is no hope for democracy, peace, freedom, a concept originally proposed in 1776 by Adam Smith in “The Wealth of the Nations”. Smith noted that the welfare of the lower classes of a nation depends on economic growth, and noted that stagnation and economic decline may lead to a worsening of poverty. In a static economy (condition entirely theoretical) a unique opportunity to improve their living conditions is to replace someone else (*mors tua vita mea*).

In a closed system, the economy soon becomes a zero-sum game, with a finite quantity of available resources. When this happens, economic growth becomes more and more a kind of lottery; the emancipation of the poorer classes and social growth in advanced societies becomes a memory of past golden ages. For the emerging countries that same social growth remains a dream: they may touch its realization, but they can only have a very small taste of it.

¹⁹ Rino Russo and A. V. Autino, “The Social Turbulence In Egypt Are New Evidence of the Civilization Implosion Risk: Global Democracy is Possible Only in the Presence of a New Industrial Revolution!”, 2013, http://www.spacerenaissance.org/NEWS/SRITALIA_Editorial_01_The_Turmoils_in_Egypt.pdf.

Responsibility and the Role of Governments and Politics

Another article touches a particularly sensitive point for those who support human expansion into space: the responsibility of the major space agencies, primarily NASA, ESA, and the Russian space agency, for the scary delay in the expansion process, which in fact has been blocked for more than forty years.²⁰ Speaking about agencies, we speak of course about the governments to which the agencies belong and thus about political responsibilities. The European strategy has historically focused on the use of space for Earth: telecommunications, Earth observation, scientific payloads. ESA participates in astronomical programs, including human flight, only in partnership with NASA or the Russian agency and does not own in-house developed vehicles, other than expendable launchers for placing satellites into orbit. NASA was historically at the forefront, adopting a strategy focused on exploration and scientific experimentation. The Russian space program obviously suffered a setback as a result of the political changes that occurred with the fall of the Berlin Wall and the dissolution of the Soviet Union. But the Soyuz capsule remained in production and is currently the only vehicle able to carry astronauts to the ISS. Overall, forty years after the historic landing on the Moon, agencies have spent more than one trillion dollars of public money, but the first signs of the space frontier opening to private companies occurred only with the historic Scaled Composites victory of the X-Prize in 2004.²¹ This event marked the beginning of the crisis of the U.S. space agency, now seen as a governmental bandwagon, only able to spend huge amounts of public money, but not to develop technologies to reduce the cost of the earth-orbit transport or to encourage the development of space tourism and civilian astronautics. To avoid damaging the burgeoning industry of expendable rockets, NASA chose to quash the very promising X15 project,²² a fully reusable suborbital space plane, which in 1969 made 200 flights at an altitude of 100 km, in favor of the space shuttle, which was only partially reusable, built in five unique pieces, giving up even a modest industrial production. Scaled Composites realized the historic feat of designing and building a fully reusable suborbital vehicle with an investment of thirty million dollars, while each single flight of the space shuttle cost five hundred millions! Space tourism is now out of fiction and the first commercial suborbital flights may begin soon. But the newborn civilian astronautics industry is taking its first steps and, most important, it is not yet capable of independent development. So, if alone, it could fail to reverse the macro-economic trends before the crisis reaches a point of no return.

During the G20 meeting of September 5th, 2013, the big leaders finally agreed on the priority issue: growth. They should now consider the logical consequence of such a target, only feasible by means of a great new industrial development. The governments of the spacefaring countries should urgently fulfill their responsibilities and adopt policies to open up space to private enterprises: tax relief on investments in astronautical activities, support to business, making available the extensive know-how accumulated by space agencies for the implementation of commercial projects, encouraging the creation of specific space investment funds, encouraging the creation of theme parks, and the widespread dissemination of culture: we need to

²⁰ A. V. Autino, "The ideological failure of Space Agencies," http://www.tdf.it/2004/age_eng.htm.

²¹ A. V. Autino, "SpaceShipOne re-opened the way, after 36 years!" *TDF Newsletter* 1, no. 2, http://www.tdf.it/2004/n_12_eng.htm.

²² http://en.wikipedia.org/wiki/North_American_X-15.

develop political and public awareness. EASA and FFA must broaden their horizons and must treat systematically the issue of access to space regulation by developing security guarantees, but with a view to stimulation and not negative conditioning. International cooperation must make a quantum leap forward, putting an end to the anachronistic policy of embargo, except when justified by really serious reasons, helping countries willing to adopt a space program to make it happen in a short time and at a reasonable cost.

Everybody should do his or her part, in order to affirm the new paradigm:

- a) use public money for space exploration and for scientific experimentation in space;
- b) create specific space investment funds to support space industrialization.

This approach, which advocates the division of space agencies into two parts with different objectives, was born in the context of the discussion of the Space Renaissance Initiative in 2009 and was published for the first time in the paper written by Drs. Feng Hsu (NASA) and Ken Cox (ATWG), "A Unified Space Vision."²³

The role of governments is very important, especially as a stimulus and encouragement to invest. If civilization were lost due to the petty greed of those who could invest and did not do it, the demise might be well deserved! The greatest immorality is not to possess large capital; the real immorality is tying up capital and government policies should increasingly orient the taxation of non-invested capital and the de-taxation of invested capital. The proceeds of the frozen capital taxation should then be used to finance aid programs and tax relief for companies having the courage to embark on the space adventure.

Nothing is lost, yet. The substantial know-how accumulated by the agencies (and costing so much!) is still intact and the vortex of the global crisis has not yet begun to turn so fast as to eat all the cultural and technological resources of humanity. With the help of everyone and a marked increase in awareness by at least the relevant sectors of society, we can still make it. Errors and delays can still be recovered.

However, we should start as soon as possible.

Ad Astra!

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²³ F. Hsu and Ken Cox, "A Unified Space Vision", <http://www.spacerenaissance.org/papers/A-UnifiedSpaceVision-Hsu-Cox.pdf>.

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Editors' Postscript: Adriano Autino has given us an in-depth description and analysis for implementing our Kepler Space Institute recommendation for Space Philosophy, published in the Fall 2012 issue. The summary of that prescription is *Reverence for Life within Ethical civilizations – implemented by the Policy Sciences*. Adriano discusses values, culture, humanism, and ethical civilization and states the necessity of moving forward as a moral imperative. He even describes the failure to create solar civilization as a crime against humanity and goes on to include the role of governments. We encourage readers to continue the discussions on this critically important subject for the future of humanity. *Bob Krone and Gordon Arthur*.