

Humanity's Destiny Is Offworld

By Philip Robert Harris, PhD

The opening of a new, high frontier will challenge the best in us. The new lands waiting to be built in space will give us new freedom to search for better governments, social systems, and ways of life, so that our efforts during the decades ahead enable our children to find a world richer in opportunity.

Dr. Gerard K. O'Neil, author of
The High Frontier – Human Colonies in Space.

Transforming Space Visions into Realities

Human dreams and ideas span time, often taking centuries before being transformed into worthwhile activities. Some of our forebears dimly perceived the spectacular achievements this generation has witnessed since the dawn of the Space Age. Today one's philosophy of life should have at its core going beyond Earth to settle space and use its resources. Hopefully my book, *Space Enterprise*, will provide readers with insights into the challenges that lie ahead in exploring and settling offworld. That process will lead to a higher state of consciousness for our species.

In the future, our descendants may remember the 21st century primarily for proving that humanity is not Earth-bound and is able to live and work in a microgravity environment. The last five decades may be viewed as a watershed period for commercial space and living aloft. It may be seen as a period when nations shifted from space competition to cooperation, from a space race to forming joint ventures for international macroprojects. The satellite industry not only turned our world into a *global village* by its communication capabilities, but also demonstrated that it could be a profitable enterprise. Furthermore, orbital imaging and sensing has shown myriad practical applications on Earth, even in protecting our planet's environment. The Russian space station *Mir* became a platform for true international cooperation by agreements which brought aboard Europeans, Japanese, and even Americans. Today, the *International Space Station* expands the opportunities for some 16 national partners to practice *synergy*. Now spacefaring nations have much to gain in forming partnerships in joint lunar missions, particularly toward the goal of returning humans to the Moon permanently by year 2025. Perhaps this *Vision for Space Exploration* was best expressed over twenty years ago in these prophetic words:

To lead the exploration and development of the space frontier, advancing science, technology, and enterprise, by building institutions and systems that make accessible vast new resources and support human settlements beyond Earth orbit, from the highlands of the Moon to the plains of Mars.[1]

Actually to implement such lofty goals requires global *transformational leadership* in both the public and the private sectors now and in the centuries ahead. The business community at large, not just aerospace and communication satellite companies, must lead in the creation of a space ethos that supports an enlarged and well-funded space program, both in the public and private sectors. Yes, space is a place for fulfilling dreams, as well as for acquiring knowledge and promoting free enterprise.[2]

But how? Specifically, as our case in point, how can America further capitalize upon its \$20 billion investment in the Apollo lunar landings? How can all nations get payback on their total space expenditures, especially through the *utilization of space-based resources*? Some innovative answers may be gleaned from the reports and recommendations of various space studies previously cited in the above ten chapters. Apart from the technical and economic insights, especially for the establishment of a lunar base, these studies include proposals for:

- building public consensus and financial support for the space program;
- initiatives within the private sector to foster the peaceful use of space by its exploration and industrialization;
- legislation that would transform a nation's space agency, as well as its policies and procedures so as to facilitate private space enterprise;
- promotion of educational and research endeavors that prepare the next generation of spacefarers for offworld challenges!

At this juncture, the justification for peaceful and commercial development of space resources is more human and scientific than economic or political. The rationale for moving forward on the space frontier has to do with discoveries that maintain technological excellence, security, and leadership in a knowledge culture.[3] Space undertakings should aim at benefiting the Earth's peoples, especially in the Third World, by technology transfer within the twin planet economies of Earth-Space. Our aspirations should be to actualize our potential by extending human presence permanently into our universe. One proposal from Kim Peart of far-away Tasmania is worthy of implementation – namely, the formation of a *Solar Peace Corps* to take a proactive role to ensure peace and security within our solar system, especially through utilization of the Sun's energy and system's resources. The aim is to connect Earth's children to the wealth of a solar economy.

A space philosophy has to be translated into actions! For those readers who internalize the principal message of this article, here are three dimensions of a personal action plan to participate toward creation of a *spacefaring civilization*:

1. National, Regional, and Global Convocations on Space Enterprises

Individuals and organizations can raise the public's awareness by sponsoring space enterprise conferences at both the local and world levels. Although this can be

accomplished in actual group meetings, the best prospects for raising public consciousness on the necessity of space exploration and development may be the Internet and international television. Think back to the global media encounters sponsored by rock stars, environmentalists, and others with a humanitarian cause. Suppose supporters were to promote a *Global Space Day* that included international television and computer exchanges about humanity's future beyond Earth. The primary objective would be to further understanding and consensus on improving the quality of life for this planet's inhabitants by peaceful, commercial exploration and use of space-based resources. The second purpose would be to help earthkind appreciate the importance of human migration to the Moon. The impact on world citizens would be greater than present space gatherings among only the professional elite. It is the masses of our planetary inhabitants who need education about the necessity for our moving beyond Earth

2. *Alternative Funding of Space Enterprises*

New options must be pursued for financing space ventures, other than through taxes and annual governmental budget allocations. That traditional public sector approach will not obtain the \$700 billion which the National Commission on Space estimated is required over the next five decades to open up the space frontier. Nor will the \$500 million needed to build a lunar base be secured by the usual financial methods. Where are funds of that magnitude to come from, especially with huge national deficits and legislative spending restrictions? The history of both the Shuttle and the Space Station to date has been that of government cut-backs which undermined NASA designs and safety in mission planning.

Creating a space ethos implies getting the masses of citizens involved, in some manner or other, in space venture. In a democratic, free enterprise society, what better way to accomplish this than as a "space financial investor"? Innovative ways for space financing must be sought that provide citizens and entrepreneurs with financial incentives, like tax rebates, sale of bonds, or opportunities for private equity funds. To capitalize upon the enormous public interest and good will generated by the space program in the past fifty years, *alternative* or supplementary funding possibilities should be explored, including the authorization of stock sales in limited R&D technological space partnerships or trading companies. Recall that back in the *Sputnik* days, the COMSAT offering on the stock exchange was oversubscribed by the public.

Public lotteries to support scientific exploration and civilizing ventures in newly-opened frontiers are part of national experiences. Since the 15th century, European countries have used the lottery device to raise capital for public works. In 1612, the English used this means to support the Jamestown settlement. In the New World, the colonists and first citizens of the American republic employed this mechanism to fund the establishment of higher education, including Harvard, Kings College (Columbia), Dartmouth, Yale, and other universities. In the 19th century, Americans

again used lotteries to open up the Western frontier. During the present decade in the United States, for instance, lotteries have become popular again within states to fund public services, particularly education. Today, many foreign countries, such as Australia and Mexico, successfully utilize lotteries or games of chance as a means of raising money to accomplish social goals.

If income produced from new funding sources is to alleviate the tax burden of central governments relative to space expenditures, the investment scope must be vastly broadened. That is what underlies the proposal to establish space authorities, such as a *Lunar Economic Development Authority*. More creative methods of external financing of space enterprise will occur with the formation of innovative institutions for that purpose. With the proper *space ethos* in a country, extraterrestrial endeavors would be perceived as a primary national interest and asset. The public generally does not fully appreciate the handsome paybacks that resulted from previous space investments. To ensure citizen involvement in underwriting civilian space ventures, more research is needed both by government and universities on this subject.

Were more private space capitalization encouraged, then public policy makers and world leaders would be challenged to cooperate in setting disbursement objectives for the money so raised. The public is more likely to contribute enthusiastically by purchasing space bonds, stocks, or lottery tickets if the initial funds raised were devoted exclusively or primarily to offworld economic, international, and scientific use, in preference to “star wars” type activities. For example, the initial target might be in the area of *space transportation systems*. That is, to build the space “highway” for the first few hundred kilometers up into Lower Earth Orbit, the most difficult part of interplanetary travel. Global participation in financing joint space ventures could provide advanced aerospace planes and reusable launch vehicles capable of operating in geosynchronous orbit or beyond.... Just as the Conestoga wagons and railroad opened up Western resources to the nation, so will these less expensive space vehicles bring resources from orbit back to benefit the home planet.

There already exist basic constituencies to enhance the success of alternative forms of space promotion and financing, such as among:

- 3,000,000 members of fifty space advocacy groups worldwide who have an estimated aggregate budget today of more than \$30 million;
- millions of space media fans, from *Star Trek* television viewers and other numerous motion pictures like *2001* and *Apollo 13*, to the worldwide audience who witness the satellite televising of space feats or watch television productions, such as Disney’s *Plymouth* series about the first lunar community;

- the millions of people who make up the global space community – *aerospace* workers and contractors, astronomers and engineers, professors and students, etc.

Before his death, Gerard O'Neill, the visionary scientist, predicted that it would be private capital that would eventually finance space industrialization and colonization. The continued internationalization of space activities will attract global investment

3. Reorganization of National Aeronautics and Space Agencies

The emergence of a new work culture based on a knowledge call for the organizational renewal of varied space administrations within the spacefaring nations. Not only do they need to cooperate more effectively on planning joint ventures, but there may also be a need now for creation of a Global Space Administration, Authority, or Agency. Such an entity could coordinate the combined efforts of both the public and private sectors in space development worldwide. Such an international institution might prevent overlapping missions, facilitate cost savings, and concentrate efforts on space macroprojects with the best prospects for ROI. With a modernized charter, this space clearinghouse and research center might obtain more creative financing and planning of space activities, particularly with reference to space technology transfer, as well as attracting more venture capital and licensing space trading corporations. In past centuries, great trading corporations were formed by rulers and/or private investors to facilitate exploration and commerce in unknown or foreign lands. The 21st century may replicate this approach by international space trading entities, comparable to existing multinational communication satellite corporations.

Citizen involvement in any of the above three strategies would contribute to humanity's offworld progress. Michael Simon, when president of International Space Enterprises, maintained that government and industry should do more real joint space venturing together. This engineer and entrepreneur made a case for space commercialization and lunar development. Within a free enterprise, government would encourage the private sector to greater responsibility and risk by:

- incentives for taxpayers who invest in space enterprise;
- policies promoting innovative space entrepreneurialism;
- mechanisms for improving space market responsiveness;
- opportunities for achieving large-scale commercial benefits;
- initiatives that encourage synergy among companies, universities, and government entities engaged in working together to apply space research and transfer technology.

Perhaps Simon best stated the case for investment in space development in his volume, *Keeping the Dream Alive*:

The era in which we live presents humanity with three great challenges: to live in peace, to bring economic prosperity to all people, and to offer tomorrow's generations an exciting future of physical and spiritual growth. During its relatively brief existence, the Space Program has emerged as a central force in our quest to meet all of these challenges. By breaching the bonds of our home planet, we have taken the tentative early steps to become an advanced interplanetary civilization. The impact of the embryonic space age on our lives, already great, will expand and intensify in the years to come, as our horizons become as limitless as the Universe itself.[4]

The UN has already designated those who go aloft as humanity's *envoys*, as illustrated in Exhibit 1. In creating a spacefaring civilization, these words of Robinson and White highlight the global paradigm shift under way:

Our embryonic envoys have been essential intelligence agents for greater understanding of this survival vision—a total view. Through our efforts to propagate our envoys into the cosmos, through their own personal preparation and adjustments, and also through our remote biotechnological reception of their new transglobal outlook, our envoys have helped us begin to understand the systematic, dynamic, multidimensional, and continuous nature of the cosmos.[5]

Exhibit 1
Orbital Envoys of Humankind



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Exhibit 1 – Orbital Envoys of Humankind. Every spacefarer represents the human family offworld, whether worker, tourist, or settler. The hopes of our species in the future depend on their performance aloft. And they are expanded by our robotic creations in space. *Source:* NASA Headquarters.

Exercising Transformational Leadership

Since our species is in transition to space-based living, this necessitates profound changes in sociology, biology, philosophy, government, and law. Space technological advances are the drivers of a wholly new offworld environment and creation of a space culture. Thoughtful citizens concerned about humanity's destiny want to participate in the process, beginning with the formulation of a space ethos. But it also requires a new type of leadership which has been characterized as *transformational*.

Transformational leaders, according to Tichy and DeVanna, recognize the need for changes, such as have been examined here in *Space Enterprise - Living and Working Offworld*.^[6] Furthermore, such leaders create and communicate the vision of these desired changes so that a critical mass of people find them acceptable. Then, this leadership personally mobilizes commitment into foresighted strategies which are converted into actualities. So, too, can transformational leadership renew the space program worldwide, restructure space agencies, and refinance space undertakings. Transformational leadership can promote synergy among spacefaring nations, as in joint transnational human missions to the Moon, Mars, and Venus before the end of this century.

When humans are engaged in such missions of long duration, Bormanis and Logsdon and their colleagues remind us that a whole range of space policy issues need to be addressed, such as:

- (1) the uniqueness of the space environment;
- (2) the selection, composition, and interactions of space crews;
- (3) space inhabitants as microsocieties with standards, laws, ethics, and values;
- (4) the medical and scientific experimentation under way in orbit;
- (5) the spacefarer's survival and quality of life, including communication and privacy rights, health care, pregnancy, deviant acts, death and risk management;
- (6) the space explorer's environmental responsibilities relative to contamination, management of waste and debris, and other such ecology issues.^[7]

The exercise of authentic global leadership within all segments of both the public and private sectors could transform citizen goodwill into a space ethos that permeates our lives toward opening up the high frontier. When the majority of the world's population perceives the economic and human advantage to be gained there, then energies will be directed into its development and settlement. As astrophysicist and author David Brin reminds us, *science* and its child, *technology*, are cooperative endeavors requiring knowledge to be shared, especially when applied beyond Earth.[8] The message of this book is simply that space is the place where *human emergence* can truly occur, as implied in exhibit 2![9]

Exhibit 2 Human Emergence in Space

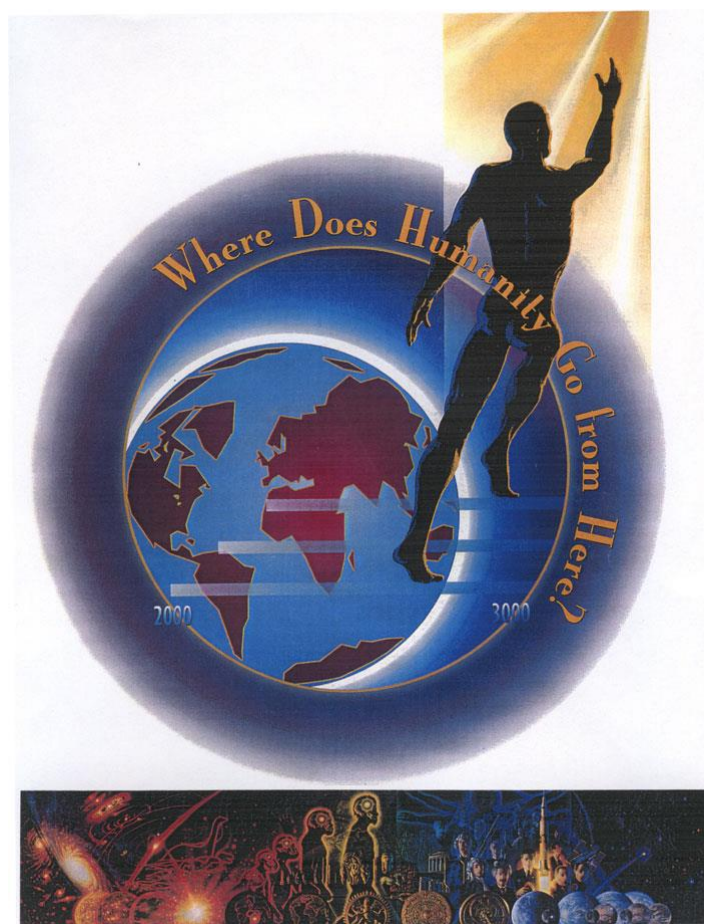


Exhibit 2 – Human Emergence in Space. It is your author's conclusion in his latest book, *Toward Human Emergence*, that humans can only actualize their potential as a species offworld (www.hrdpress.com). Source: The above illustrations are from the Foundation for the Future (www.futurefoundation.org).

Recent research has provided insight into swarm or collective intelligence – the self-organizing swarm behavior so evident in all living creatures. When it occurs, there is a movement in concert, as demonstrated among flocks of swarming birds. This will happen to human beings when our collective intelligence perceives the movement of ever larger groups into outer space. But for now there is the gradual gathering of information and experience regarding living and prospering offworld. Only by moving beyond our home planet can our potential as a species be actualized and true human emergence occur, as Exhibit 3 indicates. That goal should be at the core of your space philosophy!

Exhibit 3 Living and Working Offworld

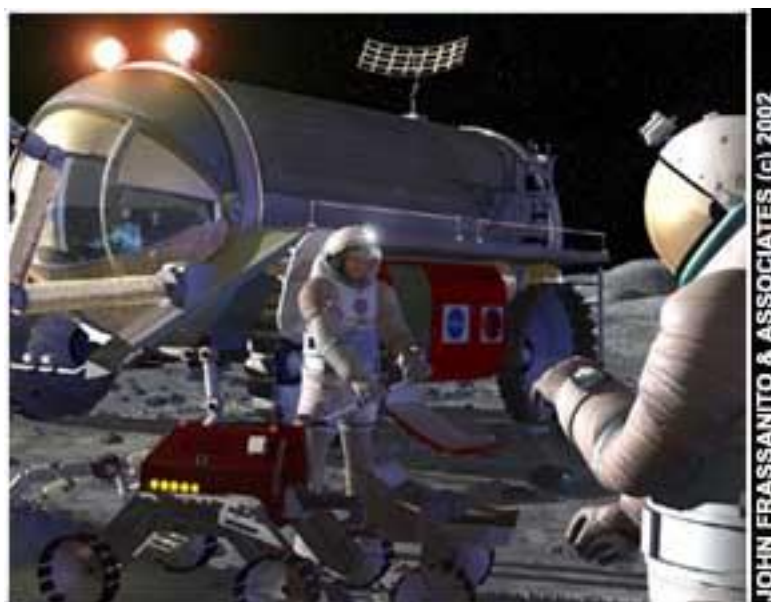


Exhibit 3 – Living and Working Offworld. By year 2025, we expect humans to be back on the Moon permanently, engaged in activities like the above. *Source:* John Frassanito & Associates.

For travelers, it is not enough to see the horizon alone. We must make sure of what is beyond the horizon, and go there together.

- Kemal Ataturk

A Spacefarer's Credo

When we fly around the Earth at eight kilometers a second, 400 kilometers up, we see our Earth as a whole planet. We observe the oceans, forests, mountains, cities,

and roads—we absolutely do not see the borders between nations. The time has come for all people of the Earth to work together to build a bright future. Let's start!

- Yuri Romanenko, October 10, 1989—Cosmonaut with the then record aloft of 420 days, including 326 days in an orbital environment!

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Notes

[1] National Commission on Space, *Pioneering the Space Frontier* (New York: Bantam Books, 1986), 2.

[2] E. S. Wibbeke, *Global Business Leadership* (Oxford: Routledge, 2009); R. T. Moran, P. R. Harris, and S. V. Moran, *Managing Cultural Differences*, 8th ed. (Oxford: Routledge, 2007).

[3] P. R. Harris, *Managing the Knowledge Culture* (Amherst, MA: Human Resource Development Press, 2005).

[4] M. C. Simon, *Keeping the Dream Alive* (San Diego: Earth-Space Operations Press, 1987).

[5] G. S. Robinson and J. M. White, *Envoys of Mankind* (Washington, DC: Smithsonian Institution Press, 1986).

[6] N. M. Tichy and M. A. DeVanna, *The Transformational Leader* (New York: John Wiley, 1986).

[7] A. Bormanis and J. M. Logsdon (eds.), *Emerging Policy Issues for Long-Duration Human Exploration* (Washington, DC: Space Policy Institute/George Washington University, 1992).

[8] E. C. Hargrove, (ed.) *Beyond Spaceship Earth – Environmental Ethics in the Solar System* (San Francisco: The Sierra Club, 1986).

[9] P. R. Harris, *Toward Human Emergence* (Amherst, MA: Human Resource Development Press, 2009).

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About the Author: Dr. Philip Robert Harris is a management/space psychologist. A former NASA consultant and Faculty Fellow, he is the author of 53 books spanning

seven decades of creative professional work. The latest is *Developing High Performance Leaders* (Oxford, Routledge, 2012, www.routledge.com). For further information, visit his website: www.wix.com/philharris/drphilipharris.



Editor's Note: This summary of Phil Harris's space philosophy is the outcome of his research as a Faculty Fellow at a NASA Summer Study on strategic planning for a lunar base. The five volumes of proceedings are entitled *Space Resources*, published in 1992 by the U.S. Government Printing Office. Volume 4 on *Social Concerns* is largely Phil's contribution. These publications of SP-509 are now available from www.univelt.com. Kepler Space Institute is proud to include Phil Harris's "*Humanity's Destiny is Offworld*" article in our first issue of *The Journal of Space Philosophy*. I videoed Dr. Harris, Dr. Thomas Matula, Dr. David Schunk (see his article "*Planet Moon Philosophy*" in this JSP Issue) and Transorbital Corporation President, Dennis Laurie, at a luncheon at Torre Pines, California on 15 December 2009. You can see and hear them each making a short statement about the critical importance of the Moon to the future of human Space exploration, development and settlement at www.bobkrone.com/node/222. *Bob Krone, PhD.*