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**A Code of Ethics and Standards for
Lunar Development and Outer-Space Commerce**

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Abstract

Professional organizations, as well as individual companies, have learned to proactively adopt and operate within the guidelines of formalized codes of ethics and standards for their terrestrial businesses. It is now time for the commercial lunar and outer space industries to develop a space code of ethics as the process of developing an economy on the Moon, on asteroids, and in low Earth orbit (LEO) begins. A successful code of ethics for outer-space commerce, including lunar development, must also facilitate the establishment of commerce rather than hinder it. It must also help the industry to proceed unfettered by government-created barriers. As such, this code encourages and supports commercial space businesses. Lunar commerce or advanced space commercialization may still be a few years away, but now is the time to establish the blueprint for space ethics for this newly evolving industry. It is within this formative period wherein lies the unique opportunity to ensure the adoption of a code of ethics for outer-space commerce.

Introduction

As we start the twenty-first century, we cannot help but note the routineness of greed and corruption in business and government. Many of our businesses and government institutions do not always value their moral and ethical responsibilities to the people they serve. In addition, our future presence on the Moon, in LEO, and beyond, is at risk when it is subject to the greed and power models so prevalent today. Developing space commerce in an ethical manor is both desirable and possible, thus I have created the code of ethics for space business development.

One of the most important contributions we can make to this coming era of space industrialization is the establishment of ethical principles for space businesses. The practices and values that we take with us to outer space will form the foundation for the new space economy, as well as for those choosing to live off this planet. Now is the time for companies choosing to operate in outer space, on the Moon, in LEO, or on another celestial body, to publicly commit to the ethical development of space.

What Is A Code of Ethics?

Professor William Birkett from the University of New South Wales in Sydney, Australia, says that there are three types of Corporate Codes of Ethics. A code of ethics is a “statement of the values and principles that define the purpose of an organization. Codes of Practice guide and direct decision-making, and Codes of Conduct or Behavior prescribe or proscribe certain behavior.”¹ This paper focuses on the code of ethics, however, with industry feedback, companies can customize the code to meet their

requirements. Thus, the code will eventually include components of the other two types as well.

It is important to understand that “ethics is about choice. Without the freedom to choose, it is not ethics but law.”² Most codes of ethics are voluntary statements about how businesses and individuals will behave in their business conduct. As such, the code of ethics spells out some of the more obvious and important ethical values for a business to follow. First, ethical behavior requires that the people involved in the business have to articulate their ethical values. Creating and accepting a code of ethics helps the company and its employees to determine their ethical values and to codify them in a set of principles forming the guidelines for their business behavior.

Why a Code of Ethics Is Needed for Lunar and Commercial Space Development

The space environment is going to soon be undergoing significant changes as commerce spreads to LEO, the Moon, nearby asteroids, and even beyond. As space commerce begins, we can choose to model our development on how America settled its frontier. Alternatively, we can choose to model our space development on how the imperialistic powers of previous centuries developed their wealth using colonies, war, and political control. On the other hand, we can create a twenty-first century model. This new model can guide us in using our experience and collective wisdom to develop space in a way that reflects society’s advancements from the previous two examples cited. The code of

ethics presented in this paper supports the development and implementation of a twenty-first century model for commercial space development.

It is worthwhile to cite a few examples that illustrate terrestrial business practices that challenge our ethical standards and give cause for concern in expanding space commerce. One such example involves cigarette company targeting of teen and youth markets. Another example, corporate downsizing, while often a financial necessity, carries with it a costly human toll often ignored or insufficiently addressed. HMOs that place profits ahead of policyholder's healthcare needs are another example. Movies that glorify violence and trigger real-life re-enactment of suggestive scenes are legal and usually profitable, but push the limits of a moral-based society. Placing profits ahead of customer safety is yet another example of a lack of ethical leadership in business. This latter example has been demonstrated all too well by Firestone and Ford.

More recently, by Pacific Gas & Electric (PG&E) has provided us with a new example of unethical business behavior. PG&E recently used their bankruptcy status to avoid paying disability payments to over two hundred workers with work-related injuries, claiming that the company had no legal responsibility to do so. At the same time, however, PG&E sought and won approval from the bankruptcy court to make over \$17 million in payments to PG&E executives for bonuses and salary increases.

It is appropriate that we question whether this type of corporate leadership represented by the above examples is what we want for our space businesses. Since we as space

pioneers have the responsibility for building the foundation for the future space citizens, why not demand more from ourselves? In adopting the code of ethics, companies will demand more of themselves and they will be publicly committing to ethical business practices throughout all aspects of their business conduct.

Lunar economic development poses unique challenges for developers. Two areas that cry out for an ethical approach to development involve the lunar environment and benefit sharing of lunar resources. Millions of people are familiar with the NASA pictures of the footprints left by the astronauts in the Sea of Tranquility on the Moon. NASA's caption under the photo reads, "Footprints left by the astronauts in Sea of Tranquility are more permanent than most solid structures on Earth. Barring a chance meteorite impact, these impressions in the lunar soil will probably last millions of years."³ In considering lunar economic development, some areas of the Moon's surface may undergo change depending on the project. To many, this is environmentally unacceptable. Furthermore, when lunar development advocates mention setting aside portions of the Moon as parks or protected areas, lunar development opponents quickly point out that even those advocating development of the Moon know their activities will forever spoil the Moon's surface

Benefit sharing for lunar and space resources are legal concepts put forth in United Nations treaties, specifically the Moon Treaty. While only a handful of nations have accepted the Moon Treaty because of its controversial nature (both the United States and the former Soviet Union rejected it), it is still an enforceable treaty among those that

signed it, and possibly by all United Nations members as well. However, the ramifications of the Moon Treaty with its “common heritage of man” terminology and its requirement for benefit sharing among all nations strike at the very heart of lunar and space commerce. Businesses hoping to engage in lunar commerce may find a host of nations and legal challenges waiting for them, especially if the ventures are successful. A code of ethics subscribed to by lunar development companies may help to diffuse the fears and concerns that people have regarding lunar development, thus facilitating careful and well thought out lunar development.

The March 2001 Space Law Conference in Singapore may be an indication of what awaits those seeking to commercially develop the Moon and outer space. At the conference the Singapore Attorney General, Chan Sek Keong, in his opening remarks stated: “All nations have a common stake in the resources found within the province of space. However, only a small number are in a position to exploit them. Outer space, like the high seas and the continent of Antarctica, is a common heritage of mankind.”⁴ Thus, costly legal challenges to lunar and space development projects may be likely, as development of space resources becomes reality.

There is an ongoing trend pitting the developing nations against the developed nations. The June 2001 *World Disasters Report* of the International Federation of Red Cross and Red Crescent Societies provides a good example of this trend. This report suggests that poor countries would seek legal compensation from the industrial countries because of the latter’s contribution to global warming and climate change in the world.⁵ The report

suggested that an international tort climate court be established, saying that “increasingly sophisticated analysis of climate change means that ignorance of the consequences of industrial consumption and pollution can be no defense for inaction.”⁶ While global warming is different from space development, the trend is still appropriate to note. It behooves the commercial space industry to take steps now to reduce the benefit sharing risk, as it is unlikely that ignoring it will work. If space commerce is to proceed as unfettered as possible by governmental barriers, regulatory requirements, and outright legal challenges, the space industry needs to develop ways to operate in space and on the Moon that engage the support of potential challengers and opponents.

Another aspect of the problem comes from within the commercial space community itself. Characterizing space settlements as being similar to colonies or boomtowns creates quite a stir among people concerned about space development. Many people resist and even fear this type of characterization for space settlements. If lunar and space settlement projects do develop as colonies and boomtowns, opposition would probably exist, giving rise to cries for protective legislation from any and all governments, as well as the United Nations.

Private property rights are also an issue for outer-space commerce. Space commerce proponents usually believe that because the venture has private financing, or the company managed to land on a planetary body, the business has the right to the celestial body’s resources. Since private property rights are fundamental to a capitalistic economic system, it is natural to assume that they must be equally fundamental to developing a

space-based capitalistic economy. Yet, the issue of private property rights exacerbates the problems with the developing nations because they have no means of competing for the rights since they have no way to get to LEO, the Moon, or anywhere else in space.

Adopting a code of ethics for lunar and outer-space development enables space businesses to minimize the risks of the problems discussed. The code of ethics recognizes the problems and issues facing the commercial development of the space environment and compels those agreeing to it to give a high level of thought and analysis to these issues. It also reflects the fact that the space environment is different from any other environment commercially developed in the history of the world, thus businesses need to approach space development with a special care and concern.

A well-designed code of ethics secures the commitment of the company employees and its management in adhering to the spirit of the code. Recalling the unethical business examples cited earlier in this paper, most if not all of the companies mentioned have codes of ethics and behavior. Simply having a code is insufficient. Company leadership, its management, and all employees must share in the commitment to pursue ethical business operations. A well-designed code secures this level of commitment from company personnel.

Ethics and the Environment

Establishing and accepting a code of ethics is not the same as establishing an environmental policy. When I first became interested in business ethics for outer-space commerce, it was out of my concern for the type of management and leadership businesses would likely take with them to space. Knowing that lunar and Martian settlements along with businesses operating in space were nearing reality, I wanted assurances that the best we humans could offer in business as well as in our ethical approaches to management and leadership went with us to space, not the worst. At the end of the twentieth century and the early part of the twenty-first century, the worst examples of the human effort are often the most successful, the most talked about, the most rewarded, and the most modeled. Thus, establishing ethical standards for businesses in space was important, especially as I grasped the significance of building the foundation for those of the future who will call space their native land.

As we bring economic development to space, however, we need be aware that we have the potential to damage its environment. The approach I've used to address environmental concerns is to focus on the code of ethics. This will insure that we take to space the best we humans have to offer in business, management, leadership, and in understanding the connection that we all have together on Earth and in space. When our best qualities and characteristics go with us to space, we increase the likelihood of our taking proper care of our space environment. Fritjof Capra in book, "The Turning Point," clearly illustrates this point when he says "we live today in a globally interconnected world, in which biological, psychological, social, and environmental phenomena are all

interdependent.”⁷ As we move toward a space economy, the more awareness we bring to our interdependence and interconnectivity, the better will be our celestial development.

The Benefits of Having a Code of Ethics

A code of ethics must produce benefits for the commercial space industry and space companies. In addition, there has to be a genuine commitment to ethical business operations by all the employees for the code to have real meaning and influence with the company. Following below are some of the major benefits available to everyone when the code of ethics is accepted.

1. A well-designed code of ethics facilitates space commerce. New space business ventures reduce the risk of government interference and popular opposition to off-world business development.
2. Citizen support for developing space commerce, especially on the Moon, is important. This support will be more forthcoming as people if people know the commercial space industry adheres to ethical standards.
3. The development of commercial space, including the Moon, will be more carefully thought out, planned, and implemented because of a company’s attention to issues addressed by the code of ethics.

4. Space companies will have a wider selection of competent employees to select from in their hiring process. Prospective employees now ask about the type of work, how the company will use its products and services, about the goals and the purpose of the company, and how the company will evolve because of its success. Potential employees are encouraged to ask the company about its policies on pushing the ethical envelope beyond the edge. Expressing their own principles during the interview to make sure that they are compatible with the principles established by the company is commonplace. A space company that has adopted the code of ethics can attract higher-level candidates who are genuinely concerned about the ethics of the work they do.

5. Developing a space economy carries with it awesome responsibilities as we set the foundation building blocks for those that follow. By publicly subscribing to a voluntary code of ethics, the company's management and employees make it clear that they are aware of this responsibility and will strive to do the right thing. This is a business enhancing strategy.

6. Company employees have a higher-level purpose to guide them in their work. This higher-level purpose brings an added dimension and significance to their work. This should help the employees in reaching their goals and in feeling good about their company and the work they are doing.

7. Commercial space companies accepting and working with this code demonstrate industry leadership.

8. Space businesses that follow ethical guidelines bring the development of an advanced space economy, including the development of the Moon, that much closer to reality.
9. Safely, thoughtfully, and carefully developing space resources benefits the billions of people that live on Earth in a variety of ways.
10. Accepting the code of ethics enables the space companies to operate their ventures from a perspective that is more inclusive and balanced than just seeing the company's bottom line.

The Code of Ethics

The code of ethics developed for lunar development and outer space commerce follows, leading off with the preamble followed by the code's general principles and a brief explanatory note. The principles are in the order of their importance, starting with the most important. However, all principles are important and are an integral part of the code of ethics. It is worth noting that this code of ethics only addresses space development issues. A code of ethics for terrestrial business issues is practically the norm, with numerous models available for a company to use. Therefore, when accepting this code of ethics, the company may also want to include provisions in its code to ethically guide it in its terrestrial business affairs.

An important point to make about this code of ethics is that it empowers businessmen and women to carefully consider sensitive issues without telling them what to do. Underlying this code of ethics is the assumption that creative, competent, and committed people can eventually find solutions to difficult problems. I believe this code encourages the business community to just this.

The Preamble

We the people, associated with the economic development of outer space, including the Moon, LEO, asteroids, Mars, beyond, profess our deep concern, and care for the outer-space environment, and its resources. We recognize its importance to everyone everywhere, and the importance of how we conduct our business in space and on Earth. To assist us in carrying out the best, the highest, and the most careful and ethical economic development possible, to always protect outer-space and its celestial bodies, and to engage in space commerce unfettered by government or other barriers, we hereby establish and accept this code of ethics and its following goals:

- We value and accept the uniqueness of the outer-space environment and pledge to respect these special qualities at all times;
- We agree to develop space resources in ways that benefit to maximize the most people possible;
- We agree to be responsible and accountable for how we develop and use the resources of outer-space and celestial bodies;

- We will conduct all of our business dealings with integrity, honesty, and fairness;
- Our Code of Ethics promotes a positive work environment;
- We strive to create an atmosphere that supports the spirit of this code.

The Code's Principles

1. Our company is committed to ensuring a free market economy in outer space.

The company understands its role in making sure that there is a free market economy in outer space.

2. We will consider the effects of our space development on future generations that will live and work in space and on Earth, as we pursue the economic development of the Moon, LEO, asteroids, Mars, and beyond.

Caring for the future generations is appropriate when developing space commerce. This principle compels us to think about how our actions today will influence future generations in space and on Earth. It means that we can influence the future by how we act today. Our commitment to those that come after us is sacrosanct.

3. Our business dealings in space and on Earth will be of the highest level of integrity, honesty, fairness, and ethical concerns.

Our company is willing to be a leader in the commercial space industry by demonstrating these qualities at all times. All employees will model these qualities in their dealings within the company and without.

4. While outer space, to the best of our knowledge, represents a collection of nonliving natural objects, we agree to treat this environment with respect, concern, and thoughtful deliberation.

The full nature of the outer-space environment is unknown, even in areas where we have carried out extensive research. This principle requires us to be cautious in how we operate in space and on celestial bodies, regardless of the presence of known life forms or not.

5. We will protect the space environment and will strive to be its steward.

The company is committed to making health, safety, and environmental issues an integral part of its business planning. All space development projects will be subject to a careful and thoughtful evaluation process. In addition, we will educate our employees, business partners, investors, and the public as to ways to achieve this goal while developing our space ventures.

6. We support the environmental protection of certain areas on the Moon and other celestial bodies just as there are environmentally protected zones and designated areas on Earth.

On Earth, we have national and state parks, wilderness areas, and other protected zones. We believe that we should establish similarly designated areas on the Moon and other celestial bodies under the auspices of a lunar, celestial, or other properly designated authority.

7. The company values equally the principles put forth in this Code of Ethics and the goal of wealth maximization.

This principle demonstrates the company's commitment to the pursuit of ethical values.

8. All employees, including the executives, contractors, and third parties working with the company, agree to be responsible and accountable for the company's ethical economic development in outer space.

Having each person associated with the company assume responsibility and accountability for the ethical operations of the company helps to insure ethical business operations. It also establishes that fact that everyone associated with the company shares in the responsibility of making sure that the overall company direction is ethical.

9. While we will always conduct our business in accordance with national and international laws, we will strive to adhere to higher ethical standards for company operations.

In recognizing the uniqueness and importance of building a solid foundation for space commerce and humans living off this planet, just being legal is not enough. We must be aware of the world that we are beginning to open for all peoples. Subscribing to ethical business standards for company operations not only helps to build the best foundation possible for everyone, but it facilitates the economic development of space.

10. We agree to manage the company with consumer and product safety as our highest priority.

The company places its highest priority on safeguarding human values.

11. Company executives agree to demonstrate ethical leadership and compliance with this code of ethics.

It is rightly believed that company management serves as the roll model for employees and others doing business with the company. With this in mind, it is imperative that the company executives and managers at all times exhibit behavior that is consistent with this code of ethics.

12. Our company will establish a corporate ethics committee to address issues of an ethical nature and to approve all space-related business ventures.

This company will create an ethics committee representing both executives and employees for the purpose of addressing issues of an ethical nature. This committee for compliance with the company's code of ethics will review all ventures.

13. Employee acknowledgement and acceptance of the Code of Ethics is required.

Each employee regardless of position with the company is responsible for knowing, understanding, and complying with the company's ethics policy. In addition, each employee will sign the Code of Ethics Acknowledgement. This Acknowledgement is a receipt showing that the employee received a copy of the code of ethics, which he/she understands its importance, and the requirement to comply with its terms. Each employee will have full access to the ethics committee or a supervisor should there be any questions regarding the ethics policy.

14. Our company respects the rights of those that advocate private property rights or benefit sharing for space resources.

Our company understands the controversial nature of these two issues. The company can choose to be an advocate for either of these issues while at the same time respecting those that differ from the company's position. The company's approach to advocating its

position on either of these two matters shall be in full compliance with this code of ethics and approved by the company ethics committee.

15. Conflicts of interest are to be fully disclosed to the ethics committee.

As soon as an employee becomes aware of a real or potential conflict of interest, the conflict must be fully disclosed to the ethics committee. If the conflict of interest contradicts any provisions of the company's ethics policy, the ethics committee will suggest possible remedies for the employee to take to minimize or eliminate the conflict of interest.

16. We welcome open, honest, rational, and constructive input concerning our space development activities.

In recognizing the uniqueness of the outer-space environment including the Moon and other celestial bodies, we welcome rational and constructive feedback from interested and concerned people. Hearing from people with diverse views and interests can help us carry out space development as best as possible

17. Our company will make a full and immediate public disclosure of any political contribution made to any candidate or organization. The company ethics committee will approve all such contributions. .

This principle, while allowing for political contributions, makes sure that public disclosure is promptly forthcoming and that all such political activities on the part of the company have received prior approval by the company ethics committee.

18. Our company requires ethical behavior from those representing and working with the company.

This requirement applies to company employees and to third party representatives doing work associated with or on behalf of our company. We will do business only with those companies and individuals that are committed to the highest ethical standards for space and Earth-based business practices.

Conclusion

Adopting a code of ethics for commercial lunar and outer space development makes sense from two very important perspectives. First, by assuring people and governments that commercial space development will be pursued in a thoughtful, careful, and ethical manor, potential barriers to space commerce can be minimized or eliminated. Second, adopting an ethical approach to conducting business off planet Earth is simply the right thing and the smartest and safest thing we can do. Furthermore, it is important that the space industry develop its own ethical guidelines for space commercialization. The risk in having guidelines imposed on the industry is that the guidelines restrict economic development in space.

Ray Bradbury, the noted science fiction author, was the luncheon speaker at the Space Frontier Foundation conference in 1999. Mr. Bradbury received a question that relates to why there is a need for a code of ethics. In response to the question which suggested that we as humans were not yet ready to begin developing space resources and forming settlements on the Moon or elsewhere in space because of our violence, wars, and problems on Earth that need solving first, Bradbury offered the following response: “Go into space. Go to the Moon, Alfa Centauri, and Mars. It may not be nice because humans are not nice. But we will also take with us Shakespeare, Emily Dickinson and others. And it will be fine for the human race.”⁸ As the commercial space industry and space businesses begin operating with the code of ethics, Ray Bradbury’s assurance that “it will be fine for the human race” will happen.

Endnotes

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⁴ Singapore Attorney General Chan Sek Keong, Space Law Conference 2001, March 12-13, 2001, Singapore, CNN.Com, <http://www.cnn.com/2001/TECH/space/03/12/mir.spacelaw.ap/index.html>, 12

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⁷ Fritjof Capra, *The Turning Point: Science, Society, and the Rising Culture*, Bantam Books, NY, NY, 1982, p. 16

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