

## A CODE OF ETHICS FOR OFF-EARTH COMMERCE

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### Abstract

The time is right to propose an effective code of ethics for the conduct of business in outer space. A well-designed, cost-effective, and voluntary code of ethics will promote the growth of commercial space companies and not hinder efforts to provide products and services. A properly designed code of ethics would ensure the development of space commerce unfettered or minimally affected by government-created barriers. Indeed, if the commercial space industry does not develop its own professional code of ethics, government-imposed regulations will probably be instituted. Should this occur, there is a risk that the development of off-Earth commerce would become more restricted. The code presented in this paper seeks to avoid the imposition of new barriers to space commerce, strives to make new commercial space ventures easier to develop, and above all, demonstrates the space companies' leadership in understanding their responsibility in creating a future for humans off this planet.

The proposed code consists of a preamble that underscores basic values followed by a number of specific principles. These principles set forth broad commitments to fairness and integrity with respect to employees, consumers, business transactions, political contributions, natural resources, off-Earth development, designated environmental protection zones, and relevant national and international laws. In addition, the code of ethics is designed such that it contributes to the company's bottom line, either directly or indirectly, while ensuring that its acceptance and implementation does not create a cost burden.

Acceptance of the code of ethics by the commercial space industry, government circles, and the general public will help to assure that the code will not be perceived as foreign in nature, potentially restrictive, or threatening. Companies adopting the code of ethics will find less resistance to their space development plans, not only in the United States, but also from non-spacefaring nations. Commercial space companies accepting and refining the code will demonstrate industry leadership and an understanding that will serve future generations living, working, and playing in space.

Implementation of the code will also provide an off-Earth precedent for a free-market economy modeled after the U.S. economy. With the code as a backdrop, a colonial or Wild West mentality would become less likely. Companies would find it advantageous to balance the goal of wealth and bottom line maximization with ethical principles if such a strategy enhances their long-term prospects for success while minimizing many of their expenses.

## Introduction

Off-Earth economic expansion will develop faster with greater acceptance and more profit potential when ethical models are put in place. Our national economy boasts numerous companies that have prospered in large part because of their adherence to an ethical code: Nordstrom, Ben and Jerry's Ice Cream, Whole Foods Markets, and The Men's Wearhouse, to name just a few. What's more, a growing segment of investors prefer to invest in ethical companies with good prospects. Aware of the increasing demand for ethical business operations, companies use marketing campaigns to specifically target this segment of socially responsible investors.

Adopting an ethical approach to business is no longer unique. The concept is well established in college marketing classes. One textbook pointed out that in the past few years the number of large companies appointing ethics officers has grown from zero to about 25% and that about 60% of companies surveyed had a code of ethics.<sup>1</sup> The authors of this text cited the following advantages for using ethical guidelines in corporate business:

It helps employees identify what their firm recognizes as acceptable business practices. A code of ethics can be an effective internal control on behavior that is more desirable than external controls like government regulation. A written code helps employees avoid confusion when determining whether their decisions are ethical. The process of formulating the code of ethics facilitates discussion among employees about what is right and wrong, and ultimately creates better decisions.<sup>2</sup>

One of the most important contributions we can make in this coming era of space industrialization is the establishment of ethical principles for industries conducting business off-Earth. The practices and values we take with us into this new frontier will set a precedent for a new economy as well as for the daily lives of individuals choosing to live off-Earth.

In presenting these ethical principles, it is important to make sure that a company's costs are not increased without a corresponding return when adhering to the principles. Also, since the code of ethics is directed to both the regulators as well as those running the businesses, the code, while being cost-effective, productive, and manageable from the business perspective, also addresses regulatory concerns without giving regulators a license to enact policies and requirements without regard to cost or impact.

### What is a Code of Ethics?

Professor William Birkett from the University of New South Wales in Sydney, Australia, divided corporate codes into three types. The first type, *a code of ethics*, is, in his words, "a statement of the values and principles that define the purpose of an organization."<sup>3</sup> The second type, *a code of practice*, guides and directs decision making, whereas the third

type, *a code of conduct or behavior*, prescribes or proscribes certain behavior.”<sup>4</sup> The first type, a code of ethics, is the subject of this paper.

A code of ethics can simply be suggested guidelines that are quite similar to a code of practice. Alternatively, the code of ethics may be rather stringent, mandating that all company employees adhere to strict rules of behavior. Depending on how and why the code is designed, a code of ethics may become a vehicle “for reconstituting the power of community ethics and morality as corporate power.”<sup>5</sup> Thus, a code of ethics can be a managerial device to establish a level of corporate morality. As such, it may include certain policies deemed necessary by the company. A well-designed corporate code of ethics, especially one that is applicable to a new industry such as space commerce, can help to meet unusual developments in an evolving business environment.

It is important to understand that in a perfect world, ethics should involve choice. Ethics, without freedom to choose, is nothing less than law. Most codes of ethics are voluntary statements detailing how organizations will conduct business and how associated individuals will behave in their performance of business activities. Thus a code of ethics describes in detail some of the more obvious and important ethical values to which a business should adhere. Creating a code of ethics helps a company and its employees to determine their ethical values and codify them within a set of established guidelines for their business behavior.

A well-written code of ethics would facilitate, rather than hinder, the growth of individual businesses. Furthermore, a properly designed code of ethics would ensure the development of space commerce unfettered by government-created barriers. Indeed, if the commercial space industry does not develop its own effective professional code of ethics, then government-imposed regulations will certainly fill the void. Should this occur, future development would probably be far more difficult and costly.

To fashion an effective general code of ethics, input is necessary from private parties engaging and advocating commercial space ventures as well as from relevant public-sector policymakers. The extrapolation of a code of ethics from terrestrial business to off-Earth commerce would assure that the code would not be perceived as foreign in nature, potentially restrictive, or threatening to commercial development. Companies adopting a code of ethics may find less resistance to their space development plans, not only in the United States, but also from non-spacefaring nations. Less resistance helps companies commit more resources to implement business plans rather than address political or regulatory issues.

### The Need for an Effective Code of Ethics

Numerous illustrations of unethical business practices here on Earth can instruct new space industries on what they should not do. One such example involves the tobacco industry. Over the past several decades this industry has targeted youth in its marketing efforts, covered up the harmful nature of its product, and formulated its product to be as addictive as possible. These practices have seriously jeopardized the current profitability of the tobacco industry as it has paid billions in penalties and fines resulting from private-party and government litigation.

The exorbitant legal claims against this industry would seem to demonstrate the true long-term costs of pursuing unethical policies in search of profits.

Another industry worth mentioning for its unethical practices is healthcare industry. Health maintenance organizations (HMOs) have frequently placed profits ahead of the healthcare needs of the insured. This practice has resulted not only in extensive litigation costs for the HMOs, but restrictive legislation on both the federal and state level. Both litigation and legislation is certainly raising the operating costs of the HMOs. While the HMOs will try to pass the increased costs on to their policy holders through rate increases and benefit reductions, it is likely that their overall profitability will be reduced from what it would have been had the HMOs simply been ethical from the beginning.

Other more recent examples of unethical practices can be found in specific companies such as Firestone, Ford, and Pacific Gas & Electric (PG&E). Firestone and Ford knew that faulty tire construction was causing injury and death in SUVs but did nothing until the matter became public. Later, because of the negative publicity, they were forced to recall the tires and compensate victims. This corporate behavior also cost both companies a significant amount of money in short-term sales and may have a long-term effect on their marketing images.

PG&E also qualifies as a worst-case example for this discussion given the corporation's refusal to honor disability claims of more than two hundred workers.<sup>6</sup> It was true that PG&E had filed for bankruptcy as had the company handling the disability claims for PG&E, but during the same period the corporation won approval from its bankruptcy judge to pay over \$17 million in bonuses to executives and key employees. Eventually, the disabled workers received their disability compensation in a settlement with the company.<sup>7</sup> More recently, other companies, such as Arthur Anderson, Enron, Merrill Lynch, Global Crossing, and Worldcom have been accused of using questionable accounting practices to misstate reported income.

We must make a clear distinction between inappropriate business conduct and the type of corporate leadership we want in off-Earth commerce. Since we as pioneers carry the responsibility for building an ethical foundation for the future citizens of space, shouldn't we demand the highest standards? Yes, we must because we have learned again and again that short-term thinking hurts both people and profits. In adopting a code of ethics, organizations demand more of themselves and publicly commit to advancing ethical practices throughout all aspects of their business.

### The Primary Business Concern

Business leaders, CEOs, and entrepreneurs have offered extensive comments and thoughts regarding a code of ethics. Almost all of their concerns are focused on the code adversely impacting the costs their companies are already facing. These costs not only include hard dollar costs, but also costs measured in time, i.e. delays in enacting a business plan objective or carrying out an operation in favor of more planning, especially long-range planning. In addition, this community of businessmen and -women are accustomed to equating corporate behavior codes with increased regulatory costs and burdens, all of which produce little or no actual benefit for the company. As has been said many times, maybe a large

company like General Motors can sustain these costs, but for a start-up undertaking a commercial mission to the Moon or building a new space transportation vehicle, such regulatory costs and burdens are destructive. Thus, while a code of ethics may seem well intentioned, unless it can be shown that the code won't be financially or otherwise burdensome or destructive for the commercial space business, many businessmen and -women will not be interested.

In developing this Code of Ethics for Off-Earth Commerce, this requirement, to avoid being a cost or regulatory burden for the company, is absolutely paramount in importance if the code is to be accepted and used within the commercial space industry. Words, often labeled as rhetoric, are less than assuring, especially when the CEO has to make decisions that have the potential of either adding to a company's bottom line or possibly increasing operating costs thereby reducing the bottom line. Also, it is extremely easy for a regulator to see the good in all or some of the code's principles, design policies to help bring the principles to reality, but not consider the economic impact of the policy or regulation on the business or the development of the industry. Therefore, it is essential that the code strike a balance among the regulators and policy makers and the businessmen and -women running the commercial space businesses so that the code can be accepted and used in developing our new space economy.

To this end, a specific principle has been created which strives to assure that adopting the code of ethics will not be a financial or operational burden on any space company. Because this concern is recognized as the primary objection to a code by space company management, the first principle addresses this issue. It is important to understand that this does not mean it is the most important of all principles but it is an acknowledgement to business leaders that the Code of Ethics for Off-Earth Commerce has been designed in such a way to be supportive to businesses and not to be a burden to them.

#### The Business Ethic Committee

It is recommended that each business establish an ethics committee specifically chartered to address the issues in the codes of ethics principles and to be a source of guidance to the business in adhering to the code. This committee would be the corporate conscious for space activities. Each company will decide the composition of the committee such as should its members be strictly from within the business or should outside representative be invited to participate? For insiders, what levels of employment should be represented? For insiders and outsiders, what skills should the members possess? These decisions are best left to each company to decide based on its own understanding of the role of the committee, the resources available to the committee, and the willingness of the company to share potentially sensitive information with outsiders and to accept their input. Most likely this is not a problem given that most companies have either a board of directors or advisors including people from outside the company. The ethics committee could be modeled after either of these two well-established business entities.

The ethics committee would have the power given it by the company and this will vary depending on each individual company. As envisioned in this paper, the committee is seen as an oversight committee with broad-based consulting-like responsibilities. For some issues, such

as conflict of interest and political contributions, the ethics committee might have enforcement authority. For example, should an issue arise that is a conflict of interest for the company, the committee's decision on how to proceed might be binding. Should the company desire to make a political contribution, having it first approved by the committee and disclosed under the terms of the ethics principles might be obligatory.

On other issues, the committee might offer guidance, advice, suggestions, and alternatives along with an explanation and analysis of the potential consequences of the action being considered. Corporate compliance would be voluntary and the ethics committee would have no enforcement power for these additional issues and concerns. As management becomes more experienced in applying the code of ethics, the ethics committee might see its involvement and consulting responsibilities in certain types of matters increasing. The ethics committee will have the responsibility of keeping the business on track as far as adhering to the code is concerned. The ethics committee should require little or no funding, but members will have a time commitment away from other business activities and priorities. Outside members may require compensation for their services. These commitments are an expense for the company, thus it is important for the ethics committee to work toward facilitating business, not obstructing it. In facilitating business, with a concern for ethics, the bottom line is being supported and this makes the committee's contribution to the company a positive one, not a burdensome or additional cost item.

### The Role of the Code in a New Economic Model

As a new era of off-Earth commerce begins, business executives, advocates, and politicians will decide, either explicitly or implicitly, what type of economic model will prevail in off-Earth development. There are three likely choices, two of which have been tried before. The first pursues off-Earth development and settlements with the boom-or-bust mentality prevalent during the California gold rush in the middle of the nineteenth century. This approach often resulted in violent behavior and the wholesale destruction of natural resources. The second choice is to fashion off-Earth development after the imperialistic powers of previous centuries wherein wealth was created by using colonies, sweatshops, and political control. Imperialism historically led to revolution and social upheaval. If off-Earth boomtowns or colonies become realities, then an opposition may develop that will insist on protective legislation from governments, possibly the UN, or some other organization created for this purpose. A proposed third model, however, calls for an entirely new vision, drawing upon the successes and failures of the past. This new model, based on a modified capitalistic system, could guide us in using our experience and collective wisdom to develop off-Earth resources with twenty-first-century care and efficiency. This economic approach, supported by an effective code of ethics, would support commercial space development, and, if followed, would avoid the costly consequences that burden businesses when the other two models are employed.

Property rights, the basis of a free-market economy, must be available to those engaged in the off-Earth businesses. Yet private-property rights may exacerbate problems with developing nations because these countries have no means of competing for the rights. Therefore, in order to avoid costly controversies, it becomes increasingly important to apply ethical standards to the creation and implementation of property rights in space.

By adopting a code of ethics for conducting off-Earth commerce, companies will minimize many potential risks. The code of ethics would recognize the challenges facing commercial development and motivate participants to be more thoughtful about these issues. The code would also recognize the unique nature of space in relation to Earth, which has already been developed for thousands of years. Businesses must approach off-Earth development with caution, care, and concern. A well-designed code of ethics secures the commitment of employees and management alike to the spirit of the code. But simply having a code is not sufficient. Most, if not all, of the companies cited earlier in this paper as having engaged in unethical practices had existing codes of ethics and behavior.

Awareness of potential problems resulting from casual development in space must be an initial priority to avoid the tremendous damage control we have had to implement here on Earth. The code could address these issues by ensuring that only those people offering the highest quality in business management and leadership would participate in building the foundation for the new space economy. With human nature's best qualities and characteristics represented in the management of new space businesses, we increase the likelihood of sustainable commercialization. In *The Turning Point: Science, Society, and the Rising Culture*, Fritjof Capra clearly illustrates this point when he writes, "We live today in a globally interconnected world in which biological, psychological, social, and environmental phenomena are all interdependent."<sup>8</sup> The more we acknowledge this interdependence, the greater will be our success as we move toward an expanded off-Earth economy.

### Lunar Development and Benefit-Sharing

Development of the Moon is significantly closer to reality than that of Mars. Thus the development of the lunar surface and the sharing of lunar resources are issues of immediate ethical significance. 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 the 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."<sup>9</sup> Most areas on the surface of the Moon will undergo change, regardless of the nature of the project. To many critics, however, this is unacceptable. Nonetheless, when advocates of lunar development talk about setting aside portions of the Moon for public parks, opponents are quick to point out that even those activities in "protected areas" will forever alter the virgin surface of the Moon. These issues need to be resolved or commercial development of the Moon could be halted.

While some critics are focused exclusively on lunar development issues, others are concerned that all nations and all people might not have access to lunar or other space resources, a concept strengthened by the United Nations Moon Treaty. The Moon Treaty addresses the highly controversial concept of benefit sharing for these resources. Only a handful of nations have accepted the Moon Treaty. Both the United States and the former Soviet Union have rejected it. Notwithstanding, the Moon Treaty remains enforceable among those countries that approved it and possibly among all United Nations' members. The Moon Treaty, with its "common heritage of man" terminology and its requirement for benefit sharing

among all nations, has the potential to strike at the heart of off-Earth commerce. A code of ethics accepted and implemented by off-Earth development companies may not only help diffuse the fears and concerns surrounding these issues, but it may also facilitate careful and well-planned off-Earth development.

The March 2001 Space Law Conference in Singapore has provided a realistic indication of the future that awaits those seeking to commercially develop the Moon and other off-Earth resources. In his opening remarks, the Singapore Attorney General, Chan Sek Keong, said: “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.”<sup>10</sup> Because of this attitude among many nations, costly legal challenges to lunar and other off-Earth development projects may be on the horizon as the development of space resources gradually evolves.

There is an ongoing trend toward pitting developed nations against developing ones. Peter Capella provided a good example when he cited a report of the International Federation of Red Cross and Red Crescent Societies. The report predicted that poor countries will seek legal compensation from industrialized nations for hastening global warming and climate change. Further, the report recommended the establishment of an international tort climate court, claiming that “increasingly sophisticated analysis of climate change means that ignorance of the consequences of industrial consumption and pollution can be no defense for inaction.”<sup>11</sup> Although global warming is not usually associated with off-Earth development, the trend remains noteworthy. If off-Earth commerce is to proceed unfettered by governmental barriers such as regulatory requirements and direct legal challenges, then the commercial space industry should consider actions to minimize the risks of benefit sharing. Ignoring this issue, as well as the larger issue of ethics, will likely result in future barriers that reduce the potential return on investment.

The concept of benefit sharing can be demonstrated when a private company drills for oil or gas on U.S. federal lands or lands owned by Native Americans. In such cases, a predetermined royalty payment of 12.5% is taken off the top of the cash flow stream. The oil company projects the royalty payment into the economics of the transaction, if the forecast cannot sustain the royalty burden, then the venture does not happen. The oil company is not involved in the politics or policies concern with how the royalties are spent or distributed. It simply pays the royalty fee as directed by the lease terms.

Should benefit sharing ever become an obstacle to space commerce, space companies may want to consider establishing a similar royalty payment system. A royalty rate could be agreed upon by the parties, and the royalty burden would be incorporated into the company’s economic assessment of the project. An entity, perhaps the UN or one of its agencies, could be designated to receive the royalty payments. As a result of this approach, the space venture would be free to focus all its energies on appropriate business planning, policymaking, and management issues.



## The Specific Benefits of an Ethical Code

A code of ethics must produce benefits for businesses operating in space. In turn, there must be a genuine commitment to ethical business operations by all employees for the code to have true meaning and influence. Here are some of the major benefits that will result from acceptance of a viable code of ethics:

1. An ethically developing off-Earth economy assures responsible use of resources and establishes a moral precedent for future generations of explorers and settlers.
2. A code of ethics facilitates off-Earth commerce. Ethically focused space ventures reduce the risk of government interference and popular opposition. Businesses that consistently follow ethical guidelines will bring the development of advanced off-Earth commerce to rapid reality.
3. Following a code of ethics, off-Earth commerce will be more carefully considered, planned, and implemented.
4. Safe, thoughtful, and ethical development of off-Earth resources would benefit the billions of people who live on Earth. Examples of benefits include medical and other scientific advances. We would also become better stewards for our own home, Earth.
5. Businesses that have adopted an appropriate code of ethics would attract employees of a higher caliber, employees who are genuinely concerned about the ethics of their work. The quality of management would therefore be higher. The most conscientious prospective employees are naturally interested in the social and political ramifications of what they do and how the company's products would affect others and the environment. With an appropriate code of ethics in place, employees would have a higher purpose and thus greater job satisfaction.
6. Businesses that genuinely accept and work with a code of ethics tend to be the innovators in the industry.
7. Acceptance of an appropriate code of ethics will enable space companies to operate from a long-term perspective.
8. A code of ethics commits the business to strive for perfection in safety and assures us all that issues pertaining to our safety receive the highest possible attention, concern, and action. Off-Earth Commerce anticipates the presence of men, women, and children living, working, and even playing in space and on celestial bodies. Safety for the space travelers, workers, and residents must be a primary concern for space businesses.

## Proposed Code of Ethics for Off-Earth Commerce

A code of ethics for businesses engaged in off-Earth development follows, introduced by a preamble and defined by numerous principles, each with a brief explanatory note. The

principles are presented in order of their importance, beginning with the most critical; however, each is important in its own right and an integral part of the entire code of ethics. Note that this code addresses solely those issues pertinent to space development and will evolve as new issues arise in off-Earth development.

An important point to make about the proposed code of ethics is that it empowers businessmen and -women by calling upon them to carefully consider sensitive issues without dictating how these issues are to be resolved. Underlying this code of ethics is the assumption that creative, competent, and committed people will eventually find solutions to difficult problems. The code encourages the business community to adopt such a mind-set.

### Preamble

In order to profess our deep concern and care for outer space and its resources, we subscribe to this code of ethics for off-Earth economic development. We recognize the importance of outer space to people everywhere. To ensure the most ethical and most efficient economic development, to commit to consistent protection of outer space and its celestial bodies, and to engage in space commerce unfettered by government or other regulatory barriers, we hereby establish and accept this code and its unique objectives:

We value the unique nature of outer space and pledge to respect its special qualities at all times.

We agree to develop off-Earth resources in ways that provide maximum benefit to the greatest number of people.

We agree to be responsible and accountable for how we develop and use the resources found off Earth.

We will conduct all business dealings with integrity, honesty, and fairness.

We will consistently strive to promote a positive work environment that supports the spirit of this code.

### Principles

***1. No principle in this Code of Ethics shall be construed in a way as to be a cost or regulatory burden upon the commercial space business.***

This principle assures the company that specific principles are not designed or intended to be cost or regulatory burdens for them. Businesses are both supported and encouraged in their efforts to be commercially successful. No principle is designed or intended to detract from their commercial success.

***2. We will consider the effects of all off-Earth development on future generations that will live and work in space and on Earth.***

Our commitment to those who come after us is sacrosanct. This principle reminds participating businesses to carefully consider how their actions will influence future generations both on and off Earth.

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

This principle illustrates a company's commitment to be at the forefront of the commercial space industry by consistently demonstrating the qualities described in this code of ethics. All employees will model these qualities in their thoughts and actions on behalf of the company.

***4. We are committed to ensuring a free-market economy off Earth.***

This principle confirms the importance of promoting efficient economic development off Earth.

***5. We agree to treat outer space with respect, concern, and thoughtful deliberation, regardless of the presence or absence of life forms.***

While outer space, to the best of our knowledge, represents a collection of nonliving natural objects, this principle requires extra caution in all business operations. Because of our limited understanding of outer space, we acknowledge that our presence there may have unforeseen results.

***6. We will strive to be good stewards of outer space and all its economic resources.***

This principle stresses the commitment to thoughtful, long-term planning.

***7. 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 designated certain areas as parks, wilderness areas, and other protected zones. This principle communicates the need for similarly designated areas on Mars, the Moon, and other celestial bodies, under the auspices of a celestial or other properly designated authority.

***8. All company employees, as well as other people working with the company, agree to be responsible and accountable for the ethical economic development we as a company undertake off Earth. Company executives, in particular, agree to demonstrate ethical leadership and compliance with this code of ethics.***

Ethical business operations are more likely when all individuals associated with the organization, especially those in management, are accountable.

***9. We will manage the company with consumer and product safety in mind.***

This principle establishes a concern for the safety of customers involved in space access, development, and work. It commits the company to the highest level of concern and action for safety in space, and it assures customers, employees, space travelers, and all concerned, that safety has and continues to receive the highest level of concern, attention, and action.

***10. Our company will establish a corporate ethics committee to address issues of an ethical nature and to approve all off-Earth business ventures.***

The creation of an ethics committee representing both executives and employees reinforces the intention of this code of ethics.

***11. 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 reported to the ethics committee. If the conflict of interest contradicts any provisions of the ethics policy adopted by the company, the ethics committee will suggest possible remedies to minimize or eliminate the conflict.

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

This principle, while allowing for political contributions, ensures prompt public disclosure and that all such political activities on the part of the organization receive prior approval by the ethics committee.

***13. Our company will work within the industry to create legitimate supervisory organizations, either public or private, designed to monitor and support the ethical development of space commerce.***

This principle provides for independent sources of feedback to assist the company and the commercial space industry with the development and enforcement of its code of ethics.

### Conclusion

Adopting a code of ethics for commercial off-Earth development makes practical sense from two important perspectives. First, through assuring people and governments that commercial space development will be pursued in a thoughtful, careful, and ethical manner, potential barriers to space commerce can be minimized or eliminated. Second, adopting an ethical approach to conducting business off Earth is simply the right, intelligent, and safest action we can take. If the space industry does not develop its own ethical guidelines for commercialization, there is a risk that less-than-favorable guidelines would be imposed on the industry, guidelines that may well restrict economic development in space.

Ray Bradbury, the noted science-fiction author, was one of several speakers at the Space Frontier Foundation Conference in 1999. Mr. Bradbury was asked why there is a need for a code of ethics. In response to this question, which suggested that developing space resources and forming off-Earth settlements is premature in light of the wars, violence, and other unsolved problems on Earth, Bradbury advised: “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.”<sup>12</sup>

This quotation from Ray Bradbury suggests that we need not plan, that we need not be concerned with the ramifications of space development. While I support Bradbury’s insistence that we establish off-Earth settlements, I also believe that we will have to work hard to realize the ethical development of outer space. Although capitalism will likely be the basis for the economic system we take into space—and I believe the free-enterprise system is desirable as an engine of economic growth—we cannot ignore potential abuses. The corporations cited earlier as examples of irresponsible business practices demonstrate just how easily executives can be seduced by the profit motive and personal gain to the exclusion of other concerns.

Developing outer space by using an ethical, free-market approach will require the commitment and the presence of mind to make moral issues equal in importance to financial issues. While the challenge may be formidable, it can be done. Adopting a code of ethics is a significant first step.

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