Applying The Code Of Ethics For Off-Earth Commerce And Space Development To The New Emerging Commercial Space World Of 2005 And Beyond

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Abstract

The year 2004 was an historic year for space development. Previously closed doors for accessing commercial space started opening as we find ourselves in the early stages of developing a new national space policy and vision. Congress has passed the initial funding, regulatory reform is underway, and the private sector has proven that it can safely go to low Earth orbit (LEO) and return to Earth. The new breed of space entrepreneurial companies with their CEO's, investors, and financiers have finally started doing what they set out to do which is to develop cost effective space access and start building a space tourism industry.

As the author of The Code of Ethics for Off-Earth Commerce and Space Development, now is the right time to examine this emerging new industry to determine the relevancy of pursuing a business oriented ethical approach to space commerce. The Code of Ethics for Off-Earth Commerce and Space Development should be relevant and capable of evolving with the industry as it also evolves and approaches maturity.

My purpose in implementing new ethical research for space and off-Earth commerce is to examine and update as necessary The Code of Ethics for Off-Earth Commerce and Space Development to make it useful in the emerging entrepreneurial and commercial space community. It is important that this ethical work remain a viable and preferred path for the development for commercial space development. Not only will this Code of Ethics be examined and updated as required, specific feedback from those shaping the new commercial space industry has been solicited and will form the basis of the updates. By making sure the Code of Ethics for Off-Earth Commerce and Space Development remains relevant and desirable, future generations of space settlers, explorers, and tourists, as well as the rest of us here on Earth will be well served. With the Code of Ethics, we will also see more positive regulatory and societal changes that facilitate the growth and development of new commercial space industries. We will all be able to benefit from the many new commercial opportunities which are sure to arise from the coming off-Earth commerce.

Introduction

The year 2004 saw the realization of certain events that most likely changed forever the landscape and development of emerging New Space Industries (NSIs). These events started on January 14, 2004 when President Bush set forth a new space policy with goals of returning to the Moon to stay, finishing the International Space Station (ISS), starting human flights to Mars and eventually establishing Martian settlements. Shortly thereafter, NASA Administrator Sean O'Keefe stated that the planned Hubble Space Telescope (HST) repair mission would be scratched because it would be too risky to fly a shuttle mission for the job. This sparked an ongoing debate and even the possibility of a robotic mission to keep the HST working, but more important, it forced upon a sometimes agenda motivated community the need to apply a cost benefit analysis to the money that will be used for the HST repair and public financed space projects.

The year 2004 saw SpaceShipOne, a completely private venture, reach the threshold of space with its pilot, first on June 21, 2004, then on Sept. 29 and Oct. 4, 2004 to win the X Prize competition. During the year, as a result of the President's space policy initiative, the Aldridge Committee was formed and held hearings around the country to determine the level of support for the policy and to derive a set of recommendations for implementing the new space vision proposed by President Bush. The Aldridge Committee[1] issued its report in June 2004 containing eight findings and fourteen recommendations, including the need to completely reorganize NASA to streamline its management so it can facilitate the implementation and realization of the space vision proposed by the President. Toward the end of 2004, President Bush signed into law the Commercial Space Launch Amendments Act of 2004, a bill widely acclaimed by those in the space industry. It permits space flight participants (passengers) to purchase a ticket and fly on suborbital rockets to and from space after being given written informed consent documentation regarding the risks of space flight and the rocket in question by the company offering the flights. Deemed "Permission to fly," this bill opens the door for financiers and others to make investments in alternative launch and rocket companies knowing that important regulatory barriers that were previously in place are no longer an obstacle. In addition, we saw new award and prize programs including NASA announcing its Centennial Challenges in the wake of the SpaceShipOne success, the new X Prize Cup program, and the $50 million America's Space Prize offered and funded by Bigelow Aerospace. The President signed into law the new U.S. Space Transportation Policy. This updated policy, while far from what would have pleased the emerging new space industry, represents a significant step forward for civil and commercial space when compared to earlier versions of the national space policy.

Understanding how the NSI landscape changed in 2004, it was time to take a fresh look at the relevance of this Code of Ethics for Off-Earth Commerce. Noting that the newly passed legislation requiring written informed consent touches upon address several of the existing principles of the Code of Ethics, I wanted to find out what the business leaders and innovators of this emerging new space industry thought about the code as it was currently written. Thus, the Code of Ethics for Off-Earth Commerce was submitted to the key NSI innovators for critical input and feedback regarding its acceptability and relevance to the space industry of the

future. Revisions and updates were made to the Code of Ethics based upon responses to a questionnaire sent to specific industry leaders and financiers. Since there is now a realistic and credible growing emerging NSI financed and headed by experienced business executives and professionals, it is important to know what these business leaders and innovators have to say about business ethics applied to their businesses and to operating businesses in space, including the development of permanent off-Earth settlements and in-space commercial operations.

The results of this new research have led to a restructuring of this ethical code so that it will be relevant for businesses engaged in developing the new space economy. This paper reflects the revisions to the Code. For comparison purposes, a reader may wish to access the previous version which can be found at http://www.davidlivingston.com/presentations/ISDC%2005_03%20Final%20Code%20of%20Ethics.doc.

What is a Code of Ethics?

For those new to the Code of Ethics for Off-Earth Commerce, it is important to start off with an understanding of what a Code of Ethics is in the business world. 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."[2] 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."[3] 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."[4] 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. The Code of Ethics discussed in this paper is not presented as a legal set of principles as it is strictly

voluntary. The company using this code or its own variation of it can give it whatever enforcement power it wants. Also, as mentioned elsewhere in this paper, the code presented in this paper is designed to facilitate discussion on these issues and to increase management, employee, and investor awareness regarding ethical concerns as space begins to be developed by the private-sector. Thus, this code is not a rigid set of principles to be adhered to by space companies. It is designed to be modified, amended, manipulated, and made to fit the specifics of any one company interested in this component of commercial space development.

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 nonspacefaring nations. Less resistance helps companies commit more resources to implement business plans rather than address political or regulatory issues. It is expected that whatever ethical code a company adopts or applies to its personnel and operations, the principles of the code will be in harmony with the business and strategic plans of the company, with any legal obligations the company needs to meet, with investors or shareholders, and with the fiduciary responsibility the company has to the equity and debt holders of the company.

The Need for an Effective Code of Ethics

Unfortunately, there are all too many example of unethical business practices right here on Earth. However, as we begin to plan commercial space development with a forward looking vision, we can possibly learn from the ethically challenged terrestrial examples mentioned below. However, one should note that as these examples are referenced, there is a blurring of what comprises ethics and what falls under the category of a legal issue or matter. An ethics purist may point out that the examples that follow do not fall into ethical categories but instead they represent violations of the law. In most instances this is correct but when a law gets violated, the intent to break the law stems from a problem with integrity, honesty, or other characteristics that are part of ethics. An example of this would be the act of murder. Virtually all of us would not commit an act of murder, not because we don't want to go to prison, but because we know its wrong. This knowing that murder is wrong so we don't even consider it has to do with our integrity, honesty, and ethics. So while the business examples below often cross the line to a violation of law, they are used here to demonstrate ethical problems in a portion of the business community. Before laws are violated, assuming laws are violated, there is first an ethical breakdown, notwithstanding accidents and other possible exceptions.

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 the 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 and often illegal practices can be found to have occurred in numerous companies. A partial listing of some of the better known companies includes Qwest, Tyco, Merrill Lynch & Co., ImClone Systems, Inc., WorldCom, Arthur Anderson, Adelphia Communications, AOL Time Warner, Bristol-Meyers Squibb, Enron, Duke Energy, Global Crossing, Xerox 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.[6] 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.[7]

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.

Two Primary Business Concerns

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 face. These costs not only include hard dollar costs, but 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. So, while a code of ethics may seem well intentioned, unless it can be shown that the code won't be financially, administratively, or otherwise burdensome or destructive for the commercial space business, many businessmen and -women will not be interested.

Developing this Code of Ethics for Off-Earth Commerce to avoid having it be a financial or regulatory burden for a company accepting it has been of paramount in importance. In reality, any ethical code, even this one, that increases company costs and regulatory burdens is simply a nonstarter. 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. 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. The newly undertaken research has pointed this out and made it abundantly clear that if the code is to

Business leaders, CEOs, and entrepreneurs have also made it clear that ethics is not an issue for them, their companies or for the vast majority of businesses in the United States and elsewhere. They point out that though there have been super media cases such as Enron, it does not mean that all businesses have legal and ethical problems. Their point is well taken. Thus, they see no reason to have a code of ethics in the first place. This Code of Ethics can be a bridge to communities that are less than supportive of space development and an active private-sector in space. The code helps the company make clear that an ethical awareness can be an important step forward in winning the all important community and government support for expanding commercial space development and creating a favorable regulator environment.

To this end, the code has been streamlined by greatly reducing the number of principles and developing a new section titled "Issues To Consider For Business Planning, Management, and Operations." By restructuring the code this way, I believe it will be more easily accepted by the primary target audience, the alt.space or entrepreneurial space industry. While it is clearly understood that the purpose of any business is to be profitable from its operations and to

produce a return for its investors and shareholders, a business can at the same time carry out its operations in an expanded ethical environment. There are models for this that work very well, Ben and Jerry's Ice Cream Company being one such successful model, as well as the many "green" mutual funds that major fund companies offer investors. Should a company consider the issues in this new section or create their own, the company may choose to disclose their intention as a company policy, not as part of their ethical code. In this case, the ethical part of this action would be the full and open disclosure of their policy. Therefore, by streamlining The Code of Ethics for Off-Earth Commerce and Space Development by paying attention to the important feedback from those developing the industry makes sense as it does little good if it is ignored by the very community it is directed toward. The revisions that are included in this paper have been designed in such a way as to be supportive to businesses and not to be a burden to them. This new approach should be considerably more user friendly for the business community while at the same time not sacrificing any of the ethical, policy, or even legal concerns that are used by parties wanting to thwart private space development or control space for their own agenda.

The Business Ethics Committee

Earlier versions of the code 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 was to have decided 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 principle was soundly rejected by those surveyed or interviewed in the research undertaken for this update. The objections were based on the potential cost of the committee in terms of time and money maintaining such a committee would require. Also, those providing input on the subject made it clear that they already deal with conflicts of interest through the way they manage the company and in their regular management meetings. The ethics committee added nothing, it only imposed a more bureaucratic obligation on the company. They pointed out that were they to outsource the ethics committee, the burdens would be even more intense and that this particular principle was a barrier to seeing the value in other principles. As a result of this information, the subject of awareness to conflicts of interest that may arise within a company was moved to the new section of the paper, *Issues To Consider For Business Planning, Management, and Operations.* The suggestion for the ethics committee was withdrawn.

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."[8] 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."[9] 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 pristine and natural 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."[10] 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."[11] 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 and Forward Thinking Company Policies

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. The same can be said for company policy as it reflects management interests and company plans. Here are some of the major benefits that will result from acceptance of a viable code of ethics and the disclosure of forward thinking business and operational policies.

1. An ethically developing off-Earth economy assures responsible use of resources and establishes a moral precedent for future generations of explorers and settlers without sacrificing the basic objectives of a corporation to successfully engage in business.

2. A code of ethics along with a forward thinking company policy 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 and forward thinking company policies, 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. Successful business models would have a positive impact on future space companies and their terrestrial counterparts.

5. Businesses that have adopted an appropriate code of ethics and have forward thinking policies will 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 in combination with company planning policies will enable space companies to operate from a long-term perspective without compromising basic corporate business objectives.

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.

What Do Industry Leaders Think of the Code of Ethics for Off-Earth Commerce

As stated in the introduction, its important to know what the business leaders driving the new and merging space businesses have to say about not only this Code of Ethics, but the broader question of space ethics for operations based here on Earth and those that will be based in space. A questionnaire has been sent to representatives of AST, Scaled Composites, XCOR, SpaceDev, Virgin Galactic, Vulcan Capital, Space Adventures, Bigelow Aerospace, Space Exploration Technologies, Blue Origin, Garvey Aerospace, Orbital Sciences, Orbitech, Rocketplane, and selected financiers helping to make these business ventures successful. The current Code of Ethics which can be found at http://www.davidlivingston.com/presentations/ISDC%2005_03%20Final%20Code%20of%20Ethics.doc was attached to the questionnaire which is repeated below.

Questionnaire:

Regarding the enclosed Code of Ethics for Off-Earth Commerce, please answer the following questions:

1. What do you see as the need and best application for this Code of Ethics for Off-Earth Commerce?

2. Is the Code of Ethics more useful for off-Earth businesses in space or for commercial space companies here on Earth going to and from space?

3. Would you adopt this Code of Ethics or a variation of it for your business ? Why or why not?

4. Do you believe that an endorsement of this Code of Ethics or a variation of it by the emerging space industry participants would lead to a more favorable view of space development by the public? By Congress?

5. Do you believe the Code of Ethics for Off-Earth Commerce to be more useful for publicly financed ventures, privately financed ventures, or is it the same for both?

6. Under the Commercial Space Launch Amendments Act of 2004, companies are required to provide space flight participants (passengers) with written informed consent documentation regarding all aspects and risks of a space flight. Do you believe that meeting the legal requirements for written informed consent is sufficient or do you think that there is an additional ethical responsibility on the part of the company to the participant. If you believe an additional ethical responsibility on the part of the company exists, please state what it is.

7. In reading through the enclosed Code of Ethics for Off-Earth Commerce, are there any principles that you would eliminate and why?

8. Are there issues or concerns that are not but should be included in the Code of Ethics for Off-Earth Commerce?

9. Opponents of space development often claim that if we go into space, we will ruin it, the space environment, and more, as we have done with our environment here on Earth, therefore we need to stay away from space until we become more responsible. How well does the Code of Ethics address this concern and is it effective in countering this argument?

10. Do you have any suggestions, comments or observations about ethics and space commerce, this Code of Ethics, and how we develop space businesses now and for our future?

Questionnaire Responses and Analysis

All responses to the questionnaire were anonymous. This facilitated a successful response rate averaging 30%. A more typical response rate for surveys of this kind averages in the 3-6% range.

Four respondents completely rejected all ten questions saying that the code was unnecessary as a cost and administrative burden on their company. The balance of feedback from the other respondents was positive for the code while disagreeing with the ethics committee principle.

Respondents offered comments stating to the effect that ethics was not a concern at this point in space development. Instead, concern for the laws of physics, economics, markets, and financing were mostly on their minds.

There was unanimous support that ethics should be the same for public and private space activities, but five of the respondents suggested the Code of Ethics was more useful for public programs. They cited examples of public unethical behavior to support their comment. Along the same lines, the respondents indicated that there should be no difference in ethics for a ground based space business or a business that can operate in space and off-Earth. The standards, whatever they evolve to be, should be the same for all entities.

Almost everyone responding to the questionnaire said that any code of ethics would have no impact on influencing Congress one way or the other about supporting space programming. Neither would any code of ethics make a difference with the public, especially the segment of the public already not interested in space or putting resources into space development and exploration.

Interestingly, six of the respondents said the Code of Ethics was too conservative and too strongly endorsing a capitalistic approach to the economic development of space. While all supported the free market development of space, they simply wanted it "toned down" and not so upfront as they thought the strong support of capitalism or free markets would cause problems for the developing industry. The approach suggested here was actually a misleading approach which seems a strange position to advocate when addressing ethical issues.

Three respondents cited NASA, the government, and the large aerospace industry as the biggest violators of ethics regarding space development. Each person making this claim also recommended that space stop being sold as the solution to all the problems created by humanity.

Informed consent per the Commercial Space Launch Amendments Act of 2004 was universally rejected as being ethically sufficient, even by those opposing this particular Code of Ethics. The people making this comment also suggested that they would probably stop with informed consent rather than trying develop a more satisfying and ethically sufficient replacement protocol. These individuals suggested an industry standard be developed that would encompass informed consent but would go further for better legal protection for the companies. Better legal protection was equated with ethics in this instance.

Wide disagreement regarding an environment on the Moon and anything related to a lunar environment in the Code of Ethics was mentioned as an obstacle to accepting the code. The

responses were about equally split on protecting a "so called" lunar environment, however, support for protecting the Apollo landing sites was unanimous.

Conclusions From The Questionnaire

As a result of analysis of the returned questionnaires, four conclusions have been reached with the same number of recommendations being put forth. The conclusions are listed below.

1. The entrepreneurial alt.space business community at this time is not interested in a code of ethics or ethical issues other than in the normal course of business operations. Formalizing ethics as in the case of a code of ethics is largely seen as an unnecessary intrusion as well as a cost penalty on business. They also view the formalization of ethics as unnecessary.

2. While the support from the investor, policy, regulatory, and academic communities was more favorable for a formal code of ethics, it is considered to be more valuable to have support from the people making the business ventures happen.

3. Subjectively from reading the responses, one can readily conclude that the respondents want to ignore the public, Congress, NASA and the government. Most likely the alt.space business leaders will move forward with their unique agenda and without considering ethical issues other than when such issues are included as law or as part of their normal business operations.

4. Regardless of the findings of this latest research, it is thought that space development will move forward faster and easier when businesses pay attention to ethical issues. It is believed that an ethics awareness influences space development through discussions about ethical business issues or through adoption of a more formal code of ethics for a specific company or maybe an industry.

Recommendations Based on Questionnaire Responses

Five recommendations are offered based on the results of this current research. The recommendations follow below.

1. Modify the Code of Ethics for Off-Earth Commerce to reflect the new research findings.

2. Simplify the Code's principles to be more useful and appealing for businesses engaging in Space commerce.

3. Create a new section following the Code's principles to reflect issues that management will consider in the overall context of company operations. Many of these issues were previously identified as principles in earlier versions of this paper. The new section is to be titled *Issues To Consider For Business Planning, Management, and Operations.*

4. Continue advocating the revised code and its use for facilitating off-Earth development.

5. Devise a marketing, educational, and information strategy to address the need for ethical planning and decision making, focusing on the sections of the industry most opposed to the use of any code of ethics as suggested by this research.

Revised 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 revised principles, each with a brief explanatory note. 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 revised Code of Ethics and the accompanying section, *Issues To Consider For Business Planning, Management, and Operations,* is that this approach can empower businessmen and women by calling upon them to carefully consider sensitive issues without dictating how these issues are to be resolved. Underlying this approach to corporate management is the assumption that creative, competent, and committed people will eventually find solutions to difficult problems, and that in doing so, both ethics and forward thinking will be demonstrated. This work 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 and agree to consider related issues as we plan, develop, and operate our business. 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, to engage in space commerce unfettered by government or other regulatory barriers, and to at all times pursue our legal and fiduciary obligations, we hereby recognize this code, its unique objectives, and assets for commercial space businesses and the overall industry:

> 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 company, or a legal violation or contradiction of any company policy or obligation upon this commercial space business.

This principle assures the company that specific principles are not designed or intended to be cost or regulatory burdens for them, nor will they lead the company to violating any laws, policies, or obligations necessary for the company to maintain with its directors, shareholders, and other interested parties. 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 pledge to maintain strict honesty in our dealings within the company, with related and unrelated business partners and associates, with our shareholders, and the public as we develop and carry out our management and business operations. Our business dealings in space and on Earth will be of the highest level of integrity, honesty, fairness, with a focus toward ethical behavior and decision making.

This principle illustrates the company's commitment to ethical dealings at all times with all parties and to be upfront with its disclosures regarding policy, management, planning, operating decisions, and actions.

3. We pledge that our company will not make use of force, intimidation, misleading statements, negative comments about others in or outside industry, or any other negative influencing or pressure tactic in the scope of our competing and carrying out our business plan for commercial space development.

This principle commits the business to supporting an open and fair playing field for all commercial space activities by assuring the community that the company will only operate in this above board context. It also assures competitors that it will not engage in behind the back politics or other efforts to gain unfair or unethical ground on competitors.

4. We are committed to the ethic of ensuring a free-market economy off Earth as this not only facilitates the best environment for company success, but it provides the best environment for commercial space development to benefit humanity.

This principle confirms the importance of promoting efficient economic development off-Earth for the benefit of the company and all humanity.

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 ethical awareness in our business operations.

6. The corporate and personal ethics of our company requires us to value consumer and product safety as we carry out our business operations.

This principle establishes a concern for the safety of customers involved in space access, development, and work. It shows that the company has the highest level of concern for safety in space, and it assures customers, employees, space travelers, and all those interested that safety has and continues to receive the highest level of attention and action at all levels within our company.

7. All company employees, as well as other people working with the company, agree to be responsible and accountable for maintaining an ethical awareness regarding the economic development of space. Company executives, in particular, agree to demonstrate ethical awareness and leadership as they carry out their corporate responsibilities.

Ethical concerns and awareness in business operations and management are more likely when all individuals associated with the organization, especially those in management, are held accountable for their actions and behavior.

Issues To Consider For Business Planning, Management, and Operations

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

As a company, we want to consider the probable interests of the explorers, developers, and space residents who come after us . With this consideration, we are reminded that our actions can and will influence future generations both on and off-Earth.

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

In our management and operations, our goal is to carry out thoughtful, long-term planning with respect to space development and its resources, and in keeping with our business plans.

3. Supporting the environmental protection of certain areas on the Moon and possibly other celestial bodies, just as there are environmentally protected zones and designated areas on Earth, makes sense. The emerging commercial space industry should consider this as an industry-wide policy.

On Earth we have designated certain areas as parks, wilderness areas, and other protected zones. There is a need for similarly designated areas on Moon, such as the Apollo landing sites. As space is explored, the same may be true for Mars and other celestial bodies.

4. Our company appreciates that new, unknown, and unforeseen ethical issues may arise as space commerce expands and develops. We want to assure our employees, our shareholders, and the public that we will be alert to and aware of any unique ethical issues and challenges that come about as a result of our space development operations. This company will make

every effort to harmonize any such ethical issues it encounters with is business conduct and operations.

The company and its management want to assure interested parties that this company has an ethical conscious and that it intends to carry out its business operations with a high state of ethical awareness.

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

Our company supports the establishment of an industry organization to help provide voluntary guidelines for what are sure to be ethical issues that arise as businesses engage in off-Earth commerce.

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. However, it is possible that the leaders, innovators, financiers, policy makers, regulators, and entrepreneurs driving the new commercial space industry may indicate a lack of interest in the Code of Ethics for Off-Earth Commerce for their own businesses as well as the industry. Should this prove to be the case, subsequent research will be undertaken to determine how best to address the issues concerning the NSI business leaders regarding the code of ethics. It is believed that the Code of Ethics for Off-Earth Commerce is important and can facilitate our becoming a space-faring society. Bridging the gap, if there is one, between industry and the Code of Ethics will be an important undertaking by this author and those in support of this particular ethical approach to developing and expanding space commerce.

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.”[12]

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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