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BUILDING AND MAINTAINING THE CONSTITUENCY FOR
LONG-TERM SPACE EXPLORATION

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ABSTRACT

The exploration of space is a long-term endeavor that will require strong public support to weather societal and political changes over the period of its implementation. In August 2006, George Mason University's Center for Aerospace Policy Research organized a Workshop to address this issue. The sustainability of space exploration was investigated from a variety of perspectives by experts from the space sector as well as from the market research and public relations fields. Two Working Groups addressed the same overall topic. The first ("Veterans") was made up of individuals who have spent their careers in the space field or other relevant professions. The second came from the ranks of the "Space Generation," students and young professionals under the age of 35. The

current paper summarizes the results of the Workshop. It presents market research data along with conclusions regarding the need for an active strategic communications effort to enhance public support for space exploration, especially among the younger age groups. The report also presents specific ideas from the Space Generation for engaging their peers.

EXECUTIVE SUMMARY

This report documents the results of an invitation-only experts' Workshop organized and hosted by the Center for Aerospace Policy Research in the School of Public Policy of George Mason University (GMU) in Fairfax, VA, July 31-August 3, 2006.¹ Thirty-eight

¹ The Workshop was supported by grants from the Northrop Grumman Corporation, the Boeing Company and NASA. It was co-sponsored by

participants,² mainly from the U.S., with some from Europe and Canada, were brought together to discuss the topic of “Building and Maintaining the Constituency for Long-Term Space Exploration.” Many participants were invited because of their expertise in space activities over the full range of the government, industry and non-profit sectors. Others were invited because of their experience in public relations, strategic communications and market research.³

Participants were divided into two separate Working Groups, both of which addressed the same overall topic. The “Veterans” group⁴ was made up of individuals who have spent a significant

part of their careers in the space field or other relevant disciplines. The “Space Generation” group⁵ was comprised of young professionals and students under 35 years of age. This division of participants reflected recognition on the part of the Workshop organizers that what captured the Veterans’ commitment to space is not necessarily the same as what generates interest in younger people today. In addition to looking at broader issues related to exploration sustainability, a goal of the Workshop was to probe these “generational differences” with minimal cross-fertilization between the discussions of the two groups so as to permit independent approaches to the topic.

the American Astronautical Society (AAS), the American Institute of Aeronautics and Astronautics (AIAA), the European Space Policy Institute (ESPI), the International Astronautical Federation (IAF), the International Space University (ISU), the National Space Society (NSS), the Space Foundation and the Space Generation Foundation.

² The participants in the Workshop were not serving as representatives of their organizations. Rather, the views expressed in this report were developed through the collective reflections of the participants, and as such are not intended to reflect the views of any agency, company or other organization. Likewise this paper does not purport to reflect the views of any of the supporting or co-sponsoring entities.

³ The authors wish to provide special acknowledgement to two Workshop participants: Ann Davison, Partner, Fleishman-Hillard International Communications, whose professional advice regarding strategic communications planning and public relations campaigns helped in focusing the discussions of both Working Groups; and Mary Lynne Dittmar, President and CEO, Dittmar Associates, whose market studies about public reactions to space issues provided important data for analysis by both Working Groups.

⁴ The Veterans Working Group was co-chaired by the authors who also organized the Workshop.

Recognizing that exploring space is a long-term endeavor that will require strong public support to weather societal and political changes over the period of its implementation, the Workshop participants reviewed market research data on the various dimensions of public support for space exploration and looked at ways to sustain and enhance it.

Market research in the U.S. shows broad, but not necessarily deep, support for space activity in general. The Apollo generation is far more supportive than the younger age groups, the majority of whom tend to be disinterested or even opposed. As regards exploration, there is more support for lunar exploration and Mars robotic exploration than there is for human missions to Mars (which are actually opposed 3:1 by the 18-24 age

⁵ The Space Generation Working Group was co-chaired by George Whitesides, Executive Director of the National Space Society, and Srimal Wangu Choi, Principal Engineer at Orbital Sciences Corporation.

group). Although support of the Apollo generation is clearly needed in the near-term, support from those who are young today is critically important over the mid- and long-term. They are the taxpayers, voters and decision-makers of tomorrow, and they thus hold the future of space exploration in their hands.

The Workshop participants recommended that NASA undertake an active, research-based **strategic communications** effort to focus its resources in a coordinated, prioritized manner on influencing public perceptions about space exploration. Such an effort should be adequately funded to undertake:

- Market research to understand the attitudes and desires of various priority segments of the population as regards space exploration.
- Development of targeted messages to communicate effectively with specific market segments.
- Utilization of appropriate means for communicating with different audiences.

In its implementation, the space exploration program needs to be shaped to deliver maximum value to the public, responding to public interests as deduced from market research. The Workshop participants recommended that **public engagement** in exploration should be a Level One requirement. (If it's not a requirement, it's an afterthought . . . or it doesn't happen at all.) Some other ideas for involving the public included:

- For purposes of outreach (not for purposes of program

management), "space exploration" should be presented to the public as the broadest possible range of NASA activity so the public can see frequent "exploration" successes and so NASA can take the exploration message to the public on a regular basis.

- NASA needs to tell its stories better, focusing not just on hardware, but more on the personalities of both its robots and its people (including those who make critical contributions on the ground as well as those who fly).
- NASA needs to target mass media and the new interactive communication technologies popular with the important but largely disinterested younger age groups. Space needs to be taken to them; they cannot be expected to come to space on their own.

INTRODUCTION

The exploration of space is a long-term endeavor. While it is being implemented, major societal and political changes will undoubtedly take place. If space exploration is to weather such transitions, a strong base of public support for the initiative must be developed and continuously strengthened in all involved countries. Within the U.S., NASA is the organization charged with the task of implementing the Vision for Space Exploration articulated by President Bush in January 2004. However, as a government agency, it cannot continue to act without the continued support of the public's elected representatives, which will be facilitated by the

endorsement of the taxpayers who provide its funding.

Space exploration is a highly complex endeavor unlike other efforts in space that have come before. It entails a continuous and permanent expansion into space involving both robotic probes and human activities. This long-term effort transcends the NASA program and even the U.S. Vision for Space Exploration. It comprises an open-ended set of activities by many nations and private sector entities, including both government contractors and entrepreneurs interested in the commercial development and use of space. Its detailed implementation will inevitably evolve over time; thus the overall program is impossible to predict in detail at this early stage. This makes it difficult to characterize and explain to the public. And this difficulty is compounded by the fact that exploration could become an international collaborative venture, so the program must be addressed in a worldwide context.

The primary goal of the Workshop was to understand the various dimensions of public support for space exploration in the U.S. and to look at ways to enhance that public support so as to facilitate the implementation of the Vision.

MARKET RESEARCH – RECOGNIZING THE “PROBLEM”

The following insights into the U.S. public’s response to the Vision and NASA’s planned implementation of it are drawn from two market research studies (Ref. 1) on space exploration conducted by Dittmar Associates of Houston, TX. The intent of the first

study was to help NASA focus space exploration planning and implementation in ways that would promote long-term sustainability. More than one thousand Americans participated in the 3-month study, which took place August-November 2004.

Consistent with a number of previous studies, the results showed that there was a general awareness of the space program and that the American public was generally supportive of both NASA and the Vision. Not surprisingly, demographic differences pertaining to gender, ethnicity, age and other factors emerged. Reasons cited for support included technical and political advantages accruing to the U.S. (with a view that improved technology is related to improved quality of life), education and jobs. The major reason cited for opposition was priority for expenditures for other programs such as healthcare, education, childcare and defense.

The most pervasive positive finding in the study was that there is a broad sense that NASA’s space program delivers technical and societal benefits (even when specific examples of these benefits could not be cited). A majority considered NASA relevant to their everyday lives, and the degree of perceived relevance correlated to a willingness to support increases in NASA funding (even though most had no idea about the actual size of NASA’s budget). In public relations parlance, the NASA “brand” is strong.

Nonetheless, there was a strong perception (4:1) that NASA suffers from “bad publicity” and that its public relations effort is poorly executed. There is a sense that NASA does not

care about the public. Many expressed a desire to be able to be involved and to interact with the agency and the space program, and for the agency to be more responsive to them. This “personalization” of NASA is something that does not occur with many Federal agencies. It is clearly a benefit. It is also a major challenge in that the public has high expectations of NASA as regards interaction, responsiveness and relevance.

With regard to specific elements of the Vision, although the majority polled expressed “excitement or interest” in returning to the Moon, it is important to note that this overall result was in large part due to the fact the vast majority of the 45-64 age group responded this way. Significantly, in the 18-24 age group, only one-third characterized themselves as excited or interested. As to Mars, while 61% reported excitement or interest about the Mars rover missions, these feelings did not translate into support for human missions to Mars. A majority expressed confusion about the purpose and benefits of such missions, and a majority also indicated risk to human life as the rationale for their opposition. While 65% responded positively to the missions called for in the Vision through return to the Moon, only 18% of those polled supported the plan to send humans to Mars.

The second Dittmar Associates market research study was a follow-up study focused on the 18-24 age group, motivated by the apparent disinterest of this group towards space exploration uncovered in the original study. Nearly five hundred young Americans aged 18 through 24 participated in this 4-month study, which took place October 2005-

February 2006. Among the key findings:

- 55% of respondents were aware of the Vision to some extent. Although this represents a majority, “Something about the Moon” characterized the awareness level. Furthermore, this means that a full 45% of these youths were unaware or not sure that the country is embarked on a new program to explore space.
- Support for return to the Moon is slim in this age group
 - 29% interested
 - 49% neutral, 23% disinterested
- Opposition of youth to human missions to Mars is strong (3:1). Reasons include:
 - “Don’t know why we’re going there when we’re so messed up here”
 - “Don’t see the point”
 - “Costs too much”
- There is greater interest in rovers and robotic missions than in human missions
 - 85% are excited/interested in Mars rovers
 - 52% support more rover/robotic missions
 - Particular interest in interactive/virtual presence/telepresence
- In general, space exploration is not relevant to the 18-24 age group
 - Most important issues are jobs, relationships, money, war

- 27% expressed doubts that NASA ever went to the Moon
- 39% think nothing useful has come out of NASA
- 72% think NASA money would be better spent elsewhere

The market research data shows broad, but not necessarily deep, American support for space activity in general and space exploration in particular. Men are more supportive than women; women are more likely to register opposition than men. The Apollo generation is far more supportive than younger age groups, the majority of whom tend to be disinterested or even opposed. As regards specific exploration activities, there is more support for lunar exploration and Mars robotic exploration than there is for human missions to Mars. There is clearly a near-term critical need to maintain support for exploration from the Apollo generation and other older age groups (the ones who currently vote), but the skepticism of the younger age groups is particularly disconcerting because the young are essential to the sustainability of space exploration over the long term.

Recommendation: With limited resources, choices have to be made about where to apply “levers” for maximum effect. The 18-24 age group does not see space exploration as relevant to them and they currently tend not to vote. Notwithstanding this, they will carry the tax burden of funding this long-term program 20, 30 and even 40 years from now. As such they control the destiny of space exploration over the long haul. It is therefore essential that this age group be targeted and cultivated

to support space exploration over the mid- and long-term.

STRATEGIC COMMUNICATIONS

Research shows that the majority of people feel, in general, that NASA is relevant to them because agency activities have benefited society and the public good, but this generalized feeling doesn't suffice to prioritize NASA when its programs are competed against other popular programs like healthcare, education, childcare and defense. What is it that the public values in space exploration . . . or can come to value if made to understand it better? For example, discovery and technology advancement are definite benefits of exploration, but the public's interest in these less tangible products needs to be developed.

“The public,” however, is not a single coherent entity. Rather, the population is fragmented into micro-niches organized around personal relevance (Ref. 2). To instill passion, it is necessary to ascertain what the target audience is passionate about. To this end, market research is necessary in order to understand the interests of different demographic segments of the population.

Strategic communications is a multi-faceted, research-based process that starts with the collection of data from priority demographic segments to understand their needs, attitudes and habits. Only after this polling and the analysis of the data can a strategic communications campaign be undertaken to communicate about a program and develop positive attitudes towards it. A strategic communications

campaign involves targeting specific audiences by tailoring messages and selecting the best modes of delivery to reach these audiences. The goal of this communication is to ensure that the members of each targeted group come to better appreciate the relevance of the endeavor to them specifically, and that they react in a desired manner (e.g., express support). This process of convincing the public that they should care is part of a well designed strategic communications campaign.

Current NASA messaging is not as effective at securing public commitment to space exploration as it could and should be. Messages are being pushed out, but do not appear to be capturing their intended audiences. (Case in point: Market research data shows that the case has not yet been made for a key long-term element of the Vision for Space Exploration – sending humans to Mars – such that the benefits are perceived to outweigh the risks.)

NASA needs to communicate about space exploration not simply to pump out information, but rather to develop positive attitudes about the program, particularly on the part of selected priority audiences. NASA's current selection and delivery of messages, however, is not a process based on research. Thus the messages are not tailored to address the interests and needs of specific demographic groups, or to capitalize on the different approaches of these specific demographic groups to acquiring information. This failing is especially significant with respect to the younger segment that is critically important to exploration sustainability over the mid- and long-term.

It is important to note that, because public attitudes are not static, the monitoring of prioritized market segments must be a continual process. And, in response, the messages used to effect changes in public attitudes must evolve, just as the channels used for delivering these messages must shift as communications dynamics evolve for various demographic groups.

Recommendation: NASA needs to undertake an active, research-based strategic communications effort to influence public perceptions about space exploration. Data should be collected to understand the interests and desires of various priority segments of the population regarding space exploration and targeted messages and delivery modes should be used to communicate about the value of exploration. In undertaking this effort, NASA should take advantage of the wide variety of professional market research, brand management and public relations expertise available in the commercial sector.

Part of the problem is that NASA has never identified strategic communications as integral to mission success. It has historically used its Public Affairs operation as its communications arm, despite the fact that Public Affairs resources are limited and focused as a first priority on news media activities. Although one of the admirable qualities of NASA has long been its willingness to allow diverse communications approaches from its various Mission Directorates and Centers, harnessing the power of exploration messages derived from strategic communications research – even as they are interpreted in assorted

ways by these differing organizations – could offer an opportunity not realized before to garner public support.

Recommendation: To optimize the use of its communications resources, NASA should explore new ways of coordinating the agency’s strategic communications effort, with clearer lines of responsibility, accountability and direction and perhaps even centralizing funding in a single organization.

This is not NASA’s job alone. As a strategic communications approach is taken to space exploration, NASA cannot, and should not, be involved in all activities. NASA is not the only interested party and is not the only source of creativity, finances and labor. NASA, other involved government agencies, the government contractor community, the entrepreneurial community, and grassroots organizations all have roles to play in enhancing public support for space exploration. Non-government organizations may in fact have more flexibility with respect to collecting and retaining data from the public. The data and analysis needs to be shared among all concerned, however, so there is consistency among the messages delivered to the public.

Bottom line: Strategic communications is as important to exploration as the engineering and science. Without building and maintaining public support, it will be impossible to continue doing the engineering and science.

SUSTAINABILITY REQUIRES MORE THAN COMMUNICATIONS

The real source of sustainability for any enterprise is the value it delivers to the

people who provide it with the necessary resources to continue in operation – “value” as those people define it (not necessarily as those leading the enterprise would define it). To build public support, the issue is not simply communicating better with the public; it is also necessary to ensure that what an enterprise does is indeed valuable to the public, is indeed relevant to them.

The effective creation and delivery of value in a program requires a deliberate effort. In business, products sustain themselves by answering to customer needs and wants. Successful government programs are similar. To ensure their relevance to priority segments of the public, they need to be shaped to respond to needs and interests as determined through market research.

It is extremely important to clarify here that, by “shaping” the space exploration program, it is not intended that the “what” of the program be changed. The “what” is determined by national policy. It needs to be explained, but program requirements and designs must obviously be determined by professional aerospace engineers and space scientists. It is the “how” that presents the opportunity for program shaping.⁶

⁶ NASA has many opportunities to provide real value to the public within the context of its mission and charter. For example, the agency has long supported the nation’s education goals, and market research data show that this has resonated with many segments of the population, both young and old. A means of delivering value to the public thus could be to ensure that the exploration program is conducted so that an education focus is “designed in,” so as to incorporate opportunities for school children, parents, teachers, museum visitors, educational TV viewers, and others to interact with exploration activities in educationally productive ways.

Through interaction with the public (e.g., “What would excite you?”), NASA can determine the best approaches for providing perceived value to the public.

Recommendation: In its implementation, the space exploration program should be shaped to deliver maximum value to the public, using tools such as market research to help inform decision makers as to what activities and approaches are relevant to the public.

Market research shows that the public has a great desire to interact with NASA and the space program. Shaping the “how” of exploration to engage the public would be a key element in enhancing public support.

START ENGAGING THE PUBLIC NOW!

The Workshop participants looked at ways to engage the public and came up with a number of specific recommendations. Because the Space Generation Working Group was uniquely capable of addressing the needs, interests and communications preferences of youth, they focused on the cultivation of this age group.

Young people today tend to interact differently with their environment than did previous generations,⁷ and these

⁷ Through Workshop discussions, the Space Generation Working Group attempted to identify key distinguishing characteristics of young people today, in order to better focus on getting the attention of this age group. Some key characteristics identified included: idealistic yet pragmatic in their worldview, empowered, in control of their media experiences, wired and, interactive, multi-tasked, globalized, entrepreneurial, accustomed to rapid progress and needy of instant gratification.

differences impact the way in which this demographic group needs to be targeted in order to enhance their support for space exploration. Perhaps the most important characteristic of the young is the value they place on interactive engagement. This group seeks not just a one-way delivery of information, but an active two-way street of interaction. For youth today, if there is no way to interact with the information being pushed out, it is just part of the barrage of media “noise” they are exposed to continuously. They will not be interested in space exploration unless they can be involved with it through real and virtual experiences.

An example is the NASA website. This website is widely viewed, holding the record for three of the top five live Internet events, and as people are drawn to the site for live events, core audiences continue to increase. At 4.5 million page views per week, the website offers an extremely important outreach opportunity to the agency. 20-30% of these viewers are K-12 students, but without resources dedicated to creating the interactive content demanded by these young audiences, opportunities for converting them into future supporters are being lost.

Recommendation: NASA should make public engagement a Level One requirement for space exploration. If it's not a requirement, it's an afterthought, or it doesn't happen at all.

There are not enough significant and exciting milestones occurring in the near term in NASA's Exploration Systems Mission Directorate (ESMD) activities to generate and maintain public excitement about the Vision. For good

and valid program management reasons, space exploration has been closely defined at NASA as the activity managed in ESMD. That being said, there are a myriad of exciting activities conducted outside the narrow stovepipe of exploration program management that could be characterized as “space exploration” for purposes of public consumption (e.g., Mars rovers, robotic exploration of other planets, International Space Station activities, Shuttle flights, etc.). If this full set of activities was presented as part of the agency’s overall effort to explore, the public would see frequent “exploration” mission successes. This could generate greater enthusiasm for exploration writ large and provide more frequent hooks for interacting with the public about the Vision. This is *not* a program management issue; it is an outreach approach. It capitalizes on both the positive nature of the NASA brand and also the highly positive public reaction to many robotic activities such as the Mars rovers.

Recommendation: For purposes of public outreach, NASA should take advantage of the full range of agency activity and present “space exploration” to the public as broader than just the program activity managed by ESMD. By incorporating more frequent significant action into what is labeled “exploration,” NASA can generate a sense of sustained progress and also take the exploration message to the public on a regular basis.

While there are many people who are captivated by the science and engineering of NASA’s missions, many more do not identify with hardware; they identify with people. They relate to

human connections and stories. Stories are not fabrications or falsehoods. They are a time-honored means of communicating deeper truths at a level that impacts opinion and behavior. The classic formula for a story involves empathetic characters experiencing frustration in their attempts to achieve a clear goal (Ref. 3). The possibility of failure creates the hero’s story. The potential for failure is not just about loss of life; it relates to the challenges involved in achieving important but difficult goals. NASA, of all U.S. Government agencies, has the ability to create engaging human stories. NASA’s astronauts can easily be made heroes (as opposed to the de-personalization of the Astronaut Corps that has taken place through the Shuttle era). Scientists and engineers face daunting challenges daily, and they too can provide a wealth of human stories. And robots can be heroes too – just look at the positive public reaction to the plucky anthropomorphic Mars rovers, the once near-sighted Hubble and the European Huygens probe that survived its descent through the murky atmosphere of Titan.

Recommendation: NASA needs to tell its stories better to engage the public. Communications should not be just about the hardware. NASA needs to create more stories featuring personalities, which can be robots as well as people. By opening up to discussing the possibilities of failure in its undertakings, NASA can build drama and excitement and create sympathetic heroes out of its astronauts, scientists, engineers and robots.

It is primarily dedicated space aficionados who watch NASA TV. Similarly, NASA Centers see many

visitors, but these usually also come from amongst the self-selected already-interested public. For the important but largely disinterested youth market, the messages need to be taken to them; they cannot be expected to seek out space-related information. The Space Generation Working Group came up with numerous ideas for putting space where it is not expected, but where it cannot be ignored by the younger generation. Any of these “quick hits” could increase awareness of space exploration:

- Create champions who have the ability to communicate with openness, transparency and passion so as to generate excitement. Champions can be those already in NASA (such as astronauts or scientists) or youth opinion leaders and entertainment stars.
- Use non-traditional mass media to promote space exploration, such as reality TV, ESPN X-Games and space sports, a Discovery Channel “Space Week,” or youth-focused movies and magazines like Seventeen and Wired (e.g., a recent broadcast of an interview between the ISS crew and Chef Emeril Lagasse would have had a much larger audience if it had been broadcast on the Food Network rather than NASA TV).
- Use viral marketing opportunities in the new media. Develop podcasts, ringtones, MySpace pages and YouTube videos that are targeted and interesting enough to be distributed by young people to other young people.
- Put space in front of the young with guerilla marketing, such as via video games (e.g., a SecondLife Moon-Mars sim world and an Oregon Trail-type game for space) or large community events (e.g., a Central Park screening of Shuttle launches).
- For young children, collaborate with toy manufacturers to develop space-related “must have” toys (e.g., a space Tamagotchi, collector cards).
- Develop a Junior Astronaut Training Corps (similar to the Reserve Officer Training Corps).
- Offer Zero-G flights or similar space-related prizes to winners of non-space-related contests like Spelling Bees, Geography Bees or the Little League World Series.
- Continue to promote proven interactive activities such as NASA student satellite-building competitions, sci-fi and other writing contests, and public naming of missions.
- Provide information about the vast variety of space-related careers to high schools and colleges. In addition to the obvious need for scientists and engineers, many space exploration careers will be in fields other than science and engineering, affording opportunities for talented non-technical young people.
- Develop community venues that are located off the NASA Centers, perhaps in conjunction with commercial stores, where NASA souvenirs and educational material can be sold and

- individuals with knowledge about space can interact with the public. (These locations could be similar to Apple Stores, where products can be purchased and the public can visit a “Genius Bar” to ask technical and other questions of experts.)
- For those young people already working at NASA or in the space industry, promote intellectual challenge, career interest, and employee retention by creating programs which provide the time and opportunity to create software and technology (like the 20% GoogleTime program) and to have more hands-on experience than currently available (via real project management experience on low-risk projects).

Recommendation: Space exploration must be promoted in venues and through mechanisms that resonate with younger people. Existing messengers and routes can be leveraged by using mass media and new interactive communications technologies. Take space to the public; don't expect them to come to space on their own.

SOME FINAL OBSERVATIONS . . .

A clearly articulated, crisp and compelling rationale for why we are returning to the Moon is needed as an essential underpinning for effective internal and external communications, and for building public support for space exploration. There was an overwhelming sense among the Workshop participants, however, that NASA needs to promote its lunar plans in ways that distinguish them from the

old Apollo program. The public needs to see that something new and different is happening with space exploration in the 21st Century. Describing the hardware and the activities of the exploration program in Apollo terms is not sufficient (and may be counterproductive). “Returning” to the Moon is not adequate either. Consider: Travelers don’t “return to Europe” having been there once; they “go to Europe” each time for a particular purpose. And where is the excitement for youth today in re-doing what their fathers or grandfathers did almost four decades ago? Some characteristics of the new lunar effort that could serve to distinguish it are the potential international involvement, the emphasis on robotic elements, the building of an outpost for extended stay with the possibility of permanent presence, the fact that real work will be accomplished there, and above all, the realization that human exploration of the solar system starts here.

As a final cautionary note, in an international program, each partner clearly needs to develop its own strategic communications effort dealing with special characteristics and needs of its own constituencies. However, the effort of each must be done with an eye on the sensitivities of its partners so as not to inadvertently undercut them. For example, from a European perspective, with their emphasis on robotic Mars activities, exploration is not equated to human space flight and it definitely not focused on the Moon at present. And, in Canada, the public tends to be most receptive to arguments based on direct socio-economic benefits from space activities. By characterizing exploration as the broadest possible mission and set

of goals, however, many nations will find ample room to be full partners.

SPACE GENERATION WORKING GROUP INSIGHTS

The deliberations and recommendations of both Working Groups, the Veterans and the Space Generation, are reflected in the above report. The product of the Space Generation Working Group, however, provided far more detailed analysis and suggestions for capturing the interest of the important youth segment that they represented. The Group sub-divided the under-35 age group into three “life stages,” each with its own attributes – the Preparation Stage (under 16), the Building Stage (16-24) and the Maintaining Stage (24-35). They developed a separate set of strategies for interacting with young people in each of these life stages, as well as tactics for communicating (messages and means of delivery) also tailored to each stage. In the case of the Maintaining Stage, different approaches were presented for people working in the space industry already, people working in related industries and those who are not involved in space. More detail is available in the presentation made by the Space Generation Working Group at the end of the Workshop. It is available on the GMU website at <http://aerospace.gmu.edu>.

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