

Remarks by the Honorable Sean O'Keefe  
NASA Administrator  
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Thank you A.G. (A.G. Lafley, President and CEO The Procter & Gamble Company) for that very gracious introduction. Good morning every one.

I am extremely honored that you have asked me to be your speaker this morning, and to Chad Holliday (Chairman and CEO of Dupont Corporation and Chairman of the Business Council) thank you for the invitation.

Since its formation over 70 years ago, the Business Council has provided wise advice and support to those of us in involved in public service.

Last night Bill Donaldson (Chairman, Securities Exchange Commission) talked to you about great national challenges. I'm here to talk about great opportunities. I look forward to engaging you in a dialogue about ways NASA can work in partnership with the leaders of American business to advance the President's vision for space exploration, and in the process help propel American innovation and technology development.

It is very fitting we meet here in Florida as just two-and-a-half hours north of here at the Kennedy Space Center America's space exploration dreams take flight.

For 43 years the eyes of the world have turned to that unique patch of Atlantic coastal land to watch our brave astronauts ascend to the heavens on rockets developed with the best of American ingenuity.

To be certain, throughout the history of our storied agency, NASA has been defined not only by our triumphs, but also by how we have responded to tragedy.

It was just over a year ago that one of our worst tragedies occurred, the loss of Columbia and its gallant crew in the skies over east Texas.

In the aftermath of the Columbia accident, we solemnly promised the families of the astronauts and to the American people that we would find the problems, fix them, and honor the astronauts' legacy by continuing to conduct ambitious missions of exploration and discovery in space.

We are working hard to fulfill our pledge. We take seriously our commitment to implement all of the Columbia Accident Investigation Board's recommendations for addressing the technical, organizational and human factors that contributed to the accident. We are also striving to raise the safety bar even higher.

Through our new Engineering and Safety Center NASA's top scientific and engineering talent will help us reduce risks in all of our mission operations. Like many companies represented here today such as DuPont, Delta and Alcoa, we've instituted programs to provide employees a means to raise issues and concerns affecting safety, organizational performance and mission success.

NASA is also attempting to strengthen those aspects of our culture that do work, as evidenced by the magnificent job our Mars exploration team has performed in operating the Mars Exploration Rovers Spirit and Opportunity.

Incidentally, if you want an indication of how much the rovers have captured the imagination of the American public, let me give you some staggering numbers. Since January 3<sup>rd</sup> when Spirit landed in Gusev Crater, we have had 6.5 billion hits on the NASA web site--yes, 6.5 billion. This translates into over 900 million web pages being downloaded and as best we can tell about 100 discrete users. And to be sure it is quite a technology feat to communicate with two vehicles that are 100 million miles away.

As we look forward, to fulfill the President's new vision for space exploration, our first milestone is returning the Space Shuttle's to flight so that we can complete the construction of the International Space Station. I can tell you we are working very diligently toward that goal, and it is my hope that all Americans

will be able to turn their gaze next year toward the Kennedy Space Center and once again see the Shuttle light up the sky.

I suspect that many of you are familiar with the two-sided Chinese symbol that reflects the duality of crisis and opportunity. Because of the Columbia crisis, we were compelled to take a hard look at our space program goals. The Columbia tragedy was searing and cathartic. It forced us to think about how America can once again pursue a focused, visionary program of space exploration. And that's what we did. The crisis focused our attention on defining a sustained, long-term and affordable human and robotic exploration program involving the moon, Mars, and other destinations across the solar system.

A major impetus for the reexamination of our space goals came directly from the Columbia Accident Investigation Board. Its chairman, Admiral Hal Gehman, stated early on that in the absence of a clear national strategy for space exploration, our space program had drifted in the past three decades.

Indeed, one of the recommendations of the Board was for the White House, Congress, and NASA to "honor the memory of Columbia's crew by reflecting on the nation's future in space and the role of new space transportation capabilities in enabling whatever space goals the nation chooses to pursue."

Last year, President Bush, whose leadership is characterized by his determination to set clear goals and objectives, gave me and others in the Administration, including his science adviser Dr. John Marburger, the charge to help develop a new set of compelling, achievable and responsible goals for the space program.

After months of extensive and careful deliberation within the administration, President Bush presented his new vision for America's space exploration last month at NASA Headquarters.

Now I'd like to help set the stage for our discussion by giving you NASA's perspective on what the President's vision will mean for our mission activities and our interaction with American business and industry.

The President's vision builds upon work NASA already has undertaken to develop a long-term approach for space research and exploration.

When I came onboard as NASA Administrator just over two years ago we developed a statement of mission goals to help us focus our resources and energies on the kinds of projects the American public expects NASA to undertake on their behalf.

Those goals are to understand and protect our home planet, explore the Universe and search for life, and inspire the next generation of explorers. This third mission objective is focused on the young budding scientists, engineers and astronauts who will

help take us back to the Moon then on to Mars and beyond. And this initiative may reverse a decade long trend of declining interest by students in math, science and engineering fields. We hope that some of the students we inspire will join NASA and that many will use their skills in corporate America.

The pursuit of NASA's mission goals can be seen in such ambitious projects as our ongoing exploration of Mars, our efforts to develop safer and more secure civilian aircraft through our Aeronautics Enterprise, and our work to develop new space power and propulsion systems.

In fact, work on Project Prometheus, an effort to develop highly efficient nuclear power and propulsion systems for human and robotic spacecraft, was advanced by the President two years ago and now it is an integral component of his vision for exploration.

Through Project Prometheus we are looking at propulsion systems that will allow deep space missions for the first time to be redirected to take advantage of circumstances as they unfold, just as Lewis and Clark redirected their voyage nearly 200 years ago when it became clear there was no single water passage to the Pacific Ocean. We hope to demonstrate these technologies on a complex robotic mission to Jupiter's icy moons with multiple orbit

passes, thus breaking loose of the "fly-by" limitations we've been living with for years.

Last year, borrowing from the practices of successful businesses such as yours, we also developed a new long-term strategic plan.

This plan was specifically tied to the NASA budgeting process to ensure our strategic priorities are aligned with and influence budget priorities. Within that strategic plan you can find the concept of a stepping stone approach to future space exploration activities...the same concept the President spoke about in his speech.

Again, those stepping stones are: First, returning the Space Shuttles to flight. Second, completing the Space Station and using this research laboratory to test the long-term effects of space travel on human beings. Third, sending robotic probes and then human explorers on to the Moon to demonstrate technologies needed for Mars and beyond. And finally, to develop those capabilities that will allow humans to explore the far reaches of the solar system.

Our strategic plan and budget also provides NASA engineers and scientists direction to develop the enabling capabilities for a successful long-term space exploration program. We know that regular space access can only be achieved by improving safety,

reliability and affordability. Talented NASA and contractor personnel are currently working quite hard to achieve this goal.

The development of a new Crew Exploration Vehicle, under Project Constellation, a major element in the President's vision, will help us meet our second enabling goal of extending the duration and boundaries of human space flight.

The President's Commission on Implementation of the U.S. Space Exploration Policy, capably led by former Undersecretary of Defense and Secretary of the Air Force Pete Aldridge, with the support of top people from the business community and academia will assist NASA in defining the requirements for Project Constellation and other options for our space exploration program in the next four months.

As the President directed, our next exploration steps will be logically aimed at the Moon, which will provide us the resources and proving ground to allow us to function in other, more challenging environments.

Finally, our strategic plan and the president's vision anticipates the development of revolutionary capabilities through new technologies. One such technology is a laser communications system that will allow us to send large amounts of data across the solar system in a fraction of the time that it takes our spacecraft to now communicate with their controllers, which for our Mars rovers

is over 10 minutes for 100 million miles away. We hope to demonstrate this new technology on a Mars mission later in this decade.

We're also working to develop new technologies to protect our astronaut crews from physiological challenges such as radiation hazards when they travel well beyond low-Earth orbit. We are currently using research onboard the International Space Station toward this end.

Needless to say, the kinds of research we are conducting on radiation, and also on mitigating the long-term effects of spaceflight to our astronaut's bone and muscle mass, can have tremendous applications for medical research here on Earth, for example to help people who suffer from osteoporosis.

We are also quite confident that the pursuit of this vision will spur other technological developments that will lead to new products and services and tangibly improve the lives of people throughout the world. Just as the Apollo program led to important advances in computing and electronics, the potential spinoff benefits from this broad based exploration program could be considerable. Since that time, MRI's, cataract detection, and heart pumps are all examples of NASA technologies used to advance our exploration goals being applied to productive use in society.

We believe the technology development necessary to execute and implement the president's vision will accelerate advances in robotics, autonomous and fault tolerant systems, human-machine interface, materials, life support systems and novel applications of nanotechnology and microdevices.

And as the President has stated, we intend to promote commercial participation in this bold exploration agenda to further U.S. scientific, security, and economic interests. Indeed, for every dollar spent on the space program, seven dollars flows through the economy.

While we will no doubt be working with the traditional aerospace industry as this journey unfolds, we also fully intend to reach out to companies like yours to tap new ideas and concepts.

Needless to say, the business community will play a meaningful role in helping make this great exploration adventure possible. With a little imagination there are multiple products or services that will contribute to our unfolding space exploration activities, and in turn how the technologies we will develop might provide new business applications.

Of course you are all very practical business leaders, and I'm certain many of you are wondering whether or not this ambitious exploration agenda can advance on the timetable the President has presented.

To be sure there are technology hurdles but equally this will be a test of our national will and fiscal ability to undertake this journey.

We have sound reasons to believe this next great leap in space will happen. Among them is that through our strategic planning process and the extensive discussions that took place in developing the President's policy, we've put a lot of thought into how we can advance this policy in a practical and responsible manner.

There is no reason to turn the clock back to the days of the space race when we expended four percent of the federal budget on the Apollo program. Today, America dedicates less than one percent of federal spending to these objectives, and our five-year budget projection incorporates only modest increases in funding. We can do this. Indeed, each American annually contributes to space the price of a movie out for a family of four.

We will be able to achieve sustainable progress under this budget profile through strategic investments in new space systems. A phase out of the Shuttle orbiter and the redirection of research efforts will provide a cushion to support our new exploration priorities.

The budget strategy supporting the President's vision will not require large balloon payments by future Congresses and

Administrations. Unlike previous major civil space initiatives, this approach is intentionally flexible, with investments in sustainable exploration approaches to maintain affordability. Even after the end of this decade, the budget projections indicate that the exploration vision can be implemented within a NASA budget that keeps pace with inflation. Indeed, this is not a trillion dollar program, and those advancing this view should know better. Over the next five years we're not even talking about one-tenth of that amount.

I am very pleased in this regard that in our recent budget hearing House Science Committee Chairman Boehlert congratulated President Bush for quote "having done what no one has been able to or willing to do for more than 40 years--lay out a well thought out space policy with a seemingly reasonable price tag."

It is also worth noting that prominent Democrats in Congress have also signaled their willingness to give the President's proposal a fair hearing.

Of course we are only at the beginning of a long and arduous process before budgets are approved, engineering drawings are made, steel is cut, and new spacecraft are launched.

But I do know one other thing that gives me great hope. Young people I meet are absolutely thrilled human beings may

soon be headed to the cosmos, and that they may be among the first to explore the surface of Mars. The President has offered them a promising vision for our future in space. As the President has said, "Exploration is not an option we choose, it is a desire written in the human heart."

We are further delighted that many of the young people who represent the next generation of explorers are helping to prepare themselves for the adventures ahead by using the inspiration and motivation of NASA's current mission activities to focus on math and science studies.

When we made inspiring the next generation of explorers as a core mission goal for NASA, we knew that the long-term exploration of space would have to be as the President stated, a journey, not a race.

We are just at the beginning of this journey, and I look forward to working with all of you as it takes us to heights unimagined and into frontiers unknown.

Once again I thank you for the opportunity to speak to all of you and I look forward to taking your questions.