
The Importance of Projects in Outer Space & Why the World of PM needs to care!

David L. Pells

On 26 January 2007, NASA Administrator Michael Griffin addressed the Global Economic Forum in Davos, Switzerland. His speech, entitled "Incorporating Space into our Economic Sphere of Influence", discussed the importance of international space programs and projects to life on Earth. He mentioned a number of important reasons why business, governmental and political leaders around the world should care about the exploration of space, and the impact of space programs on various economies around the world.

Mr. Griffin's speech was inspirational. But it also made me realize the importance of NASA and international space programs and projects to our world of professional project management. Based on my view of the PM profession today, I believe this influence and importance is not very visible, not well understood by a majority of PM professionals in the world.

Initially, my interest was based on the size and visibility of NASA projects in the United States, beginning with the Apollo program in the 1960s and continuing today with the International Space Station and new commitments to send humans back to the moon and on to Mars. As I have learned something about space agencies in other countries around the world, such as the European Space Agency (ESA) and the Japanese Space Agency (JAXA), and as we have reported on some of their projects in PM World Today over the last year, I have gained an even greater appreciation for the importance and impact of these activities.



During the last two years, I have also had several occasions to discuss this topic with Yanping Chen, PhD, President of the University of Management & Technology in Virginia and a member of the board of directors of the Project Management Institute (PMI®). Dr. Chen is a former program manager in the Chinese Space Agency and remains engaged with several space agencies and institutions. On those occasions, I stated that "Aerospace and international space programs are important for project management!" But I was never very articulate or clear in my thinking. That has now changed, thanks in part to Mr. Griffin's speech in Davos.

Now I would like to mention the following seven reasons why I believe the global project management profession, and the whole world of modern PM, should care about projects in space and space agencies like ESA, JAXA, NASA and others:

Space Programs are important for Life on Earth Today – the exploration of space and space related projects and programs have changed our world here on Earth in many important and practical ways. For example, satellites have dramatically affected, changed and improved technologies and industries associated with communications, navigation, weather forecasting & storm tracking, remote sensing, national and global security, and various scientific fields of study. Economic and scientific benefits have been large and wide spread. These programs have become more and more important to people on Earth as we have started to cooperate on solving global problems such as global warming and energy needs. The influence of space technologies and projects will continue to increase as the commercialization of space begins, leading to more space-related enterprises and industries. All of these results are based on programs and projects, which need good professional project management.



Space Programs are Expensive – Exploring outer space is expensive. According to Mr. Griffen, NASA's budget in 1963 was approximately \$13.8 billion, or 2.3% of the federal budget. While only 0.6% of the US budget today, NASA's annual budget is still \$15 billion. Although it is beginning to change, space programs are generally financed with public money, governmental commitments and expenditures. Public projects and programs need to be properly managed, with efficiency and productivity. Professional project management can help raise efficiencies, reduce risks and increase success rates. As a tax payer, I must insist that space programs employ good professional PM. Scarce public resources must be well managed.

Space Programs employ many PM professionals – According to NASA's 2007 budget summary, the agency has 18,000 direct employees, of which 94% are working on specific programs and projects. The agency has thousands of contracts, contractors and suppliers who in turn employ hundreds of thousands of workers worldwide. While most are not as big as NASA, other space agencies around the world also employ thousands of engineers, professionals and contract workers. This means that there are hundreds of thousands of persons worldwide who are working on space programs and projects, all of whom are affected by the management of those programs and projects. There are thousands of persons in the space program with titles such as project manager, program manager, contract manager, task manager, program analyst, project scheduler, etc. How many of these professionals are engaged with the PM profession, have PM certifications or qualifications, or participate in various professional organizations or activities. I believe this industry represents a huge untapped source of knowledge and experience for the world of project management.



Space Programs advance PM professional applications & concepts – Modern project management is deeply indebted to space programs for early developments related to project planning and control techniques. The impact of NASA and other space agencies on a wide variety of technologies and industries is well documented. For example, Mr. Griffen mentioned that the development of the first microprocessors by Fairchild and Intel in the 1960s was driven by “the need to build components small enough to fit in NASA spacecraft.” While less visible today, few projects compare to those in the space program in terms of complexity and sophistication. The space program has pioneered concepts related to project quality and safety, and complex scheduling and network analysis. NASA’s internal training organization is called the “Leadership” academy, as the agency has learned the importance of communications, leadership and teamwork on their programs and projects, issues that span contracts, cultures, nations and organizations. International space programs become laboratories for advancing project management approaches, concepts and solutions.



Space Programs promote International Cooperation – the International Space Station, which is nearing completion, has included unprecedented international cooperation among United States’, Russian, European, Japanese and Canadian organizations and engineers. Mr. Griffen stated “I believe the greatest achievement of the International Space Station partnership is the partnership itself... For over six years, astronauts and cosmonauts have been living and working together onboard



the space station.” Last December, when NASA announced a new Lunar Strategy and plans for a base on the Moon, the announcement mentioned that “experts from the Australian, British, Canadian, Chinese, European, French, German, Indian, Italian, Japanese, Russian, South Korean and Ukrainian space agencies participated.” Space exploration can and should involve international cooperation, as we will all be affected and we can all benefit from the results.

International cooperation between and among project management professionals should go hand in hand with these programs.

Space Programs Inspire Us All – Neil Armstrong’s “giant leap for mankind” on the moon on 20 July 1969 remains one of the most inspiring pictures in the history of mankind. The Apollo space program inspired my generation, and millions of people around the world. The International Space Station is one of the greatest achievements in history, almost unbelievable in scope and complexity. If humans can send astronauts to the moon and back, and create an orbiting space station, what on earth can we not accomplish if we set our sights, resources and ambitions? We cannot all be astronauts, but we can be



project managers and PM professionals. We can take inspiration from the men and women who plan and successfully complete such fantastic projects, many of whom are using the same tools, techniques and theories that we use on our projects. We can learn from their experiences and share their professional aspirations.

Space Programs can lead to survival of the Human Species – Mr. Griffen ended his speech in Davos with a reference to the “cataclysmic extinction events” that have previously occurred during the history of the Earth, the last of which killed the dinosaurs around 65 million years ago. He then stated, “Our species hasn’t been around long enough to have experienced a cataclysmic extinction event. But they will occur, whether we are ready for them or not. In the end, space exploration is fundamentally about the survival of the species, about ensuring better odds for our survival through promulgation of the human species. But as we do it, we will also ensure the prosperity of our species in the economic sense, in a thousand ways.”



What better reason can we find to support the exploration of space, and the application of more and better professional project management on those programs? (The full text of Mr. Griffen’s speech can be found at <http://www.pmforum.org/blogs/press/2007/01/incorporating-space-into-our-economic.html>)

As the project management profession expands and matures in the coming years, we should find more opportunities to support project management on space programs, share stories and experiences with space agency professionals, and learn from their experiences. We can all benefit, the PM profession will be better and stronger, and, in the long run, professional project management really can help the human species survive.

Good luck with your projects!

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Editor’s note: This paper was published many years ago so some of the links to references or websites may no longer be active.

About the Author



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David L. Pells is Managing Editor of the **PM World Journal** (www.peworldjournal.net) and Managing Director of the PM World Library (www.peworldlibrary.net). David is an internationally recognized leader in the field of professional project management with more than 35 years of experience on a variety of programs and projects, including engineering, construction, energy, defense, transit, technology and nuclear security, and project sizes ranging from thousands to billions of dollars. He has been an active professional leader in the United States since the 1980s, serving on the board of directors of the Project Management Institute (PMI®) twice. He was founder and chair of the Global Project Management Forum (1995-2000), an annual meeting of leaders of PM associations from around the world.

David was awarded PMI's Person of the Year award in 1998 and Fellow Award, PMI's highest honor, in 1999. He is also an Honorary Fellow of the Association for Project Management (APM) in the UK; Project Management Associates (PMA - India); and Russian Project Management Association. Since 2010 he is an honorary member of the Project Management Association of Nepal. From June 2006 until March 2012, he was the managing editor of PM World Today. He occasionally provides high level advisory services for major programs, global organizations and the U.S. federal government. David has a BA in Business Administration from the University of Washington and a Master's degree in business from Idaho State University in the USA. He has published widely, spoken at conferences and events worldwide, and can be contacted at editor@peworldjournal.net.

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