



# ORBITAL COMMERCE PROJECT, INC.

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## Using Suborbital Spaceflight for the development of the technical workforce

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### Summary

Developing student's interest in Science, Technology, Engineering and Mathematics (STEM) has always been difficult, but past events have shown that advances in exciting fields can be used for outreach to prospective students. In the late 1950s through the 1960s the space program provided the impetus for an insurgence of interest in the STEM fields. This again happened with the internet in the late 1980s and 1990s but in both cases the enthusiasm waned as the activity in the field decreased. The advance in the Suborbital Spaceflight industry once again gives us the opportunity to use the promise of space to increase awareness and enthusiasm in STEM career fields.

### Introduction

In 2006 Orbital Commerce Project constructed the OCP Spaceflight Exhibit which consisted of a trailer containing two rocket powered aircraft simulators based on XCOR Aerospace engineering. These simulators are not rides or movies, but actual flight simulators that accurately reproduce the flight characteristics of the modeled vehicle. The simulators are simplified in that only the flight system and instrumentation was modeled so as not to overwhelm the average non-pilot who would fly the simulation.

The exhibit traveled across the continental United States and had more than 5,000 people fly the simulation. The participants ranged from experienced military U2 pilots to 83 year-old grandmothers. All had an enjoyable time, but even more importantly the exhibit had a direct positive impact on their attitude toward STEM.

As part of the program, exit surveys and exit interviews were conducted. It was found that the possibility of an average person being involved in a space program excited the participants and created an enthusiasm to learn more about spaceflight and STEM. Over 85% of the survey

participants in the age group 26 to 35 and 80% of ages 14 to 25 wanted to learn more about STEM after flying the simulations. This is proof that a spaceflight exhibit can generate enthusiasm for STEM learning, but it has to be combined with a long term program to maintain the interest.

### Benefits to the Suborbital Spaceflight industry

Just as with any other industry, Suborbital Spaceflight will need a well trained and qualified workforce. The continued lack of enthusiasm for STEM careers from U.S. students is forcing many technical companies to use foreign nationals to fill STEM related positions. This solution could pose significant challenges for a suborbital flight provider due to ITAR and technology transfer issues. Barring regulation changes, the best solution will be to increase the domestic technical workforce.

### Next Steps

To ensure the development of the next generation of technical workforce, a program must be implemented that is centered on the Suborbital Spaceflight industry and uses a traveling exhibit / show as an entry point into long-term programs. An exhibit similar to the OCP Spaceflight exhibit could travel the U.S. sparking the imaginations of young students and then directing them to existing or new programs operated by NASA, DoD, Universities and Colleges. In this way an interest in STEM is developed early and maintained through adulthood. Older students could be directed to training programs or career counselors boosting the ranks of the current technical workforce.

Commercial Human Spaceflight has a direct, positive impact on the attitude toward STEM. Now is the time to use this interest to reach out and develop the next generation of technical workforce.