

IAF HUMAN SPACEFLIGHT SYMPOSIUM (B3)  
Commercial Human Spaceflight Programmes (2)

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## THE SINGLE-PERSON SPACECRAFT IS IDEAL FOR COMMERCIAL EVA

**Abstract**

Commercial EVA will most likely look different than traditional suited operations. The Single-Person Spacecraft (SPS) is a promising alternative providing capabilities, efficiency, and a cost savings not possible with the current or planned solutions. For example, the SPS propulsion system enables rapid translation to areas inaccessible by suited astronauts. Also, SPS pilots do not need to pre-breathe or use an airlock which means the system is lighter and they can be outdoors in about 10 minutes versus the average 58 hours for suited astronauts. Particularly attractive for commercial operations is the operational cost saving of approximately 1.3M per EVA. SPS performance is another important asset. Because of limited breathing oxygen and electrical power—hand where as the SPS flies directly to the site. Once there, the pilot uses advanced robotic to perform the task while suited layer gloves. To further improve efficiency at the jobsite, the SPS has a large field of view for line-of-sight visibility and in-orbit servicing. Neutral buoyancy used for training suited astronauts is expensive and resource intensive. The SPS uses flight pressure, pure oxygen atmosphere in the spacesuit, SPS pilots operate in a less flammable earth-like, oxygen/nitrogen environment—fits—all which eliminate the hardware inventory and time required for on-orbit suits sizing. The commercial SPS has a