Market Considerations for Point-to-Point Commercial Spaceflight

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Summary
The suborbital spaceflight vehicles currently under development are, by and large intended to launch from and land at the same site, or land at a site in relatively close proximity to the point from which they were launched. Space tourism is generally the primary purpose of the planned suborbital flights, providing the passengers with an opportunity to enjoy the exhilarating experience of space flight. Most companies developing suborbital spacecraft are also incorporating provisions to support microgravity research experiments.

Point-to-point (P2P) suborbital flights designed for commercial transportation are a logical extension of suborbital space tourism. P2P flights are meant to go from point A to point B, generally separated by a significant distance, in approximately one hour with speed and efficiency being the primary design drivers. In addition, P2P passengers would enjoy a spaceflight experience. In addition to the commercial traveler, P2P would lend itself well to rapid cargo transit. This would be particularly attractive for the delivery of time-sensitive cargo. In this paper we discuss the top-level market requirements for future P2P suborbital space flight.

Market Requirements
Market studies have established a commercial demand for both orbital and suborbital space tourism. Such is not the case for P2P space tourism (Webber 2011). The market requirements for P2P suborbital spaceflight, with a focus on space tourism or commercial transportation, can be broadly categorized as medical criteria, training, insurance, spaceports, flight design, and, for the space tourist, the post flight experience.

Medical screening is important for the space tourist because of the stresses imposed on the body as a result of the high accelerations experienced during launch and re-entry. The Federal Aviation Administration (FAA) in the United States has established guidelines appropriate for planned suborbital flights during which accelerations do not exceed +3Gz. These guidelines may not be applicable and P2P travelers may need to be screened the same as orbital flight passengers.

Training requirements for P2P flights must be assessed in terms of what the customer requirements are. While a space tourist might enjoy an extended training period, a business person using P2P suborbital flights as a means to expeditiously move from one business meeting to another may not have the time to undertake more than just a modicum of fundamental training.

The issue of insurance is still being assessed because the risks associated with suborbital space travel are not completely identified (Rosa 2011). As is the case for the planned suborbital tourism flights, the companies providing P2P flights will be required to carry liability and third party liability insurances. Space flight participants and commercial passengers will likely also require some level of additional insurance.

To accommodate P2P transportation systems, the appropriate infrastructure will be required to for the new vehicles. An assessment of current and planned spaceports is needed to evaluate the supportability of P2P commercial transportation. Clearly for this to be a viable transportation option, spaceports or existing airports sufficiently modified to accommodate safety concerns must exist in many major cities around the globe. As well, a new class of vehicles is required to address the P2P market, which can potentially be achieved using hypersonic technologies. It is envisioned that these vehicles would have the capability to fly point to point anywhere on the globe in approximately one hour with the possibility to carry both passengers and cargo.

References
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