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AN HISTORIC EVENT ANALYSIS OF THE EVOLVING HUMAN SUBORBITAL  
TRANSPORTATION INDUSTRY

**Abstract**

**SUMMARY:** This paper describes the results of an historical event analysis that identifies how population members of the human suborbital space transportation industry have contributed to the construction of necessary industry infrastructure elements as evidence of possible long-term industry viability.

Most nations consider their space transportation industry to be "social infrastructure" due to its scientific and national security applications. For this reason, space transportation markets tend to be highly controlled by governments. This level of control makes space transportation industries a "context of interest" for organizational studies of institution theory (regarding the steady-state industry) and population evolution (in the case of evolving and transitioning industries).

The human suborbital space transportation industry began its evolution with the announcement of the Ansari X PRIZE, but has not yet demonstrated any evidence that it can be viable in the long-term. Repeated, revenue-generating flights conducted by individual firms could be evidence of industry viability, but these have not yet occurred.

An alternative form of evidence can be found using a framework based on population evolution research of organization theory. Necessary (but not sufficient) industry infrastructure elements (IIEs); these are market structures that must exist for an industry to survive in the long run. The IIEs include proprietary functions, the allocation of vital resources, and multiple institutional arrangements. From the outset of market formation, industry and government actors benefit by working together to develop the IIEs.

This paper describes the results of an historical event analysis (HEA) that identifies how population members of the human suborbital space transportation industry have contributed to the construction of necessary IIEs. Assessment of the degree and kind of IIE contributions by specific actors can highlight the presence of existing market formation barriers. Understanding the status of the different IIEs can also identify opportunities for meaningful contributions to market formation by the different contributors.

The HEA collected data between 26 April 1999 and 31 December 2015 from multiple secondary sources, including archive documents, press releases, publicly available government documents, conference presentations, news media reports, editorials and commentaries. The fundamental datum of this analysis is the individual event, defined as "an incident when change occurred" in each of the industry infrastructure elements. Data fields for each event include the date, actor, action, and outcome. The analysis identifies the event chronology for each IIE with an observation of the time-dependent interdependencies between elements.