

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

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PROSPECTS FOR THE DEVELOPMENT OF THE HUMAN SUBORBITAL FLIGHTS SECTOR ON
THE EXAMPLE OF THE PROJECT PREPARED FOR THE STUDENT AEROSPACE CHALLENGE
2020 COMPETITION.**Abstract**

Last few years are a period when space tourism flourished. Until now space flights were available only to the richest. Suborbital flight became the most affordable way to cross the Karman line and experience a space trip. Currently, the cost of a ticket for such a flight is about \$250,000, which comparing to the cost of a first commercial flight to ISS (\$20 mln) is a giant difference. Development of this technology will cause reaching the boundary of the outer space even more affordable and common.

The paper is based on the project of market analysis conducted for Student Aerospace Challenge 2020 competition, awarded ArianeGroup Prize. The aims of the work were to analyse the suborbital flights market, determine the potential client types and consider customers expectations, operating costs, and potential risks.

The first step in described work was to conduct a risk analysis. We examined 7 areas: technical, infrastructure, legal, economic, social, medical, and environmental for 3 assessments using a 10-points scale: results and their severity, probability and possibility of detecting a given danger. Analyzing the market from different perspectives allowed us to gather and consider all issues affecting the bussines models.

In the second stage, we carried out market analysis. With the PESTEL tool, we determined the influence of the external environment on suborbital flights. Porter's Five Forces allowed us to determine the intensity of competing forces. SWOT analysis was used to identify the strengths and weakness of suborbital flights sector.

In addition, we conducted quantitative and qualitative research among almost 300 responders to identify the dependencies between travel preferences, willingness to travel into space and the perception of the inconvenience of suborbital flights.

These three issues allowed to prepare the guidelines for the actors in this sector which we will present in this paper.