

IAF SPACE EXPLORATION SYMPOSIUM (A3)
Space Exploration Overview (1)

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WHY SPACE EXPLORATION WILL BE SOON UNSUSTAINABLE, WITHOUT A SERIOUS
CIVILIAN SPACE SETTLEMENT PROGRAMME**Abstract**

Space exploration was done since the first satellite launch – Sputnik, October 4th 1957 – for more than 60 years. A huge investment of public money was devoted to space agencies, however the high frontier was not yet opened to civilian development. The cost of Earth to Orbit transportation was artificially kept very high for more than 40 years, to second the lobbies of spendable rockets producers. And it is now only thanks to the Elon Musk's visionary and pragmatic strategy – the rockets reusability - that such cost is finally decreasing, allowing private enterprises to enter the space market area. Notwithstanding the great success and impetuous growth of the new space industry and market segment, that is paving the path for commercial space activities and eventually space settlement, the whole space agencies' strategy is still mainly based upon space exploration. And the enabling technologies to allow untrained civilians to travel, work and live in space, are still not having the due priority in the research programmes, according to a misconception – that civilian space flight pertains to private industry only. However, protection from cosmic radiations is a scientific challenge, artificial gravity includes scientific research and experimentation aspects, green environments in space habitats require research by exo-biology and exo-agriculture sciences, just to name a few key examples. This paper discusses why the advocates of a further space exploration should become the best advocates of space settlement. No doubts that space exploration will always have its importance: what we want to promote is to give proper importance to civilian space settlement, finally. The differences between exploration and expansion, in terms of feasibility, sustainability, opportunity and social needs will be analyzed. The main rationale is socio-economic: should our civilization remain closed within the boundaries of our mother planet, the multiple crises that are already jeopardizing our economy and culture will likely close the "launch window" sooner than what we could expect until a few years ago. The dramatic climate change, the COVID19 pandemics, and the subsequent deep economic crisis, are a clear demonstration. In a few year, should the space economy not be vigorously on its road to reverse the multi-crises and relaunch the global economy and cultural renaissance, how can we think there will be funds and enthusiasm for a further self-targeted space exploration?