

# New Space Tourism and Sustainability

Dr. Annette Toivonen, Author & Senior Lecturer

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## **Dr. Annette Toivonen**

**World pioneering academic researcher in New Space  
tourism**

***Author of Sustainable Space Tourism: An Introduction***

**PhD, The emergence of New Space: A grounded theory  
study of enhancing sustainability in space tourism from the  
view of Finland**

**Creator for Responsible space tourism university course  
for Haaga-Helia University of Applied Sciences, Finland**

# Tourism industry and sustainability

- The global megatrend of sustainability was furthered by the Intergovernmental Panel report in Climate Change report's (2018) concerns over the future impacts of climate change on Earth.
- The growth of modern tourism has indeed led to a significant increase in its environmental impact, which can no longer be ignored.
- Thus the need for more sustainable focused future planning in the global scale tourism industry.

I don't think the human race will  
**SURVIVE**  
the next thousand years  
unless we spread into  
**SPACE**



*Stephen Hawking via Gecko & Fly*

# Earth or space?



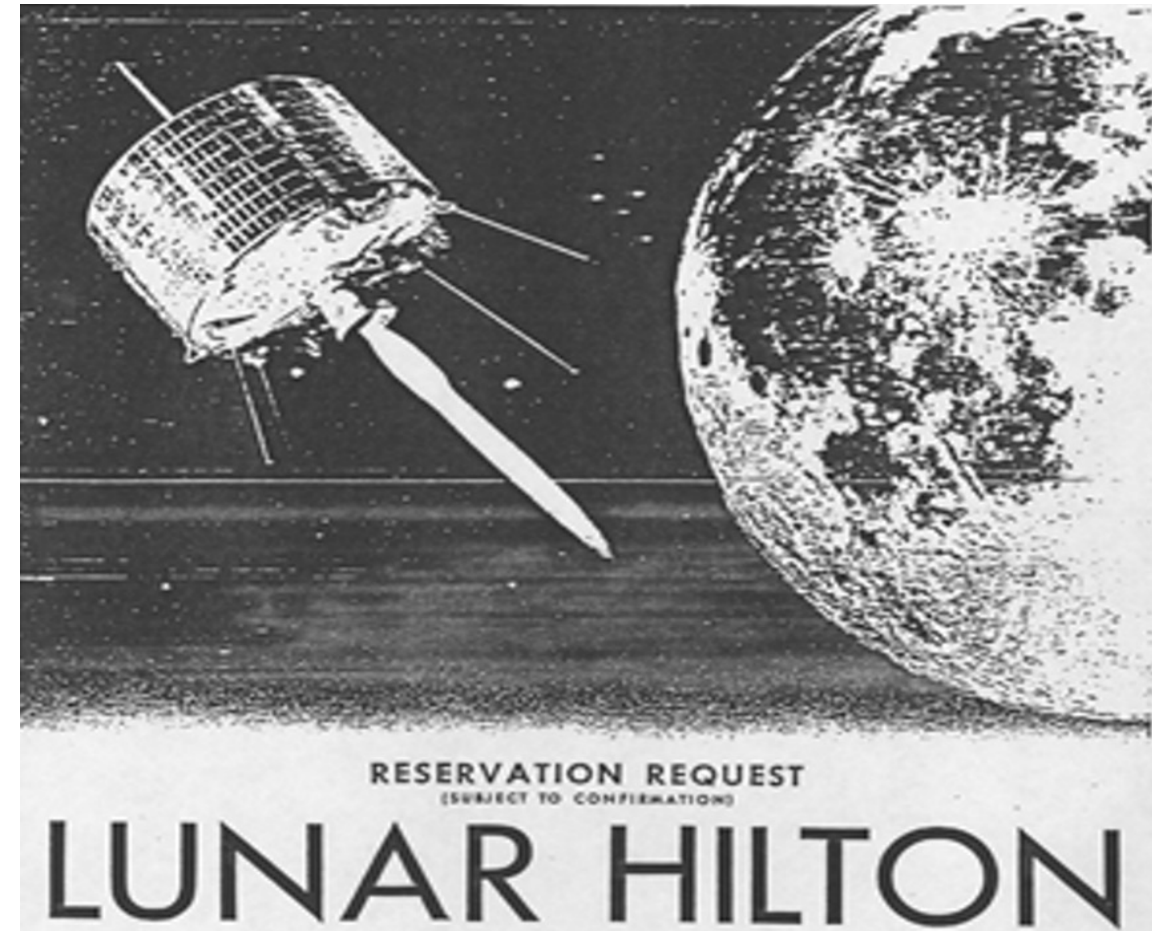
# Background to space tourism

- Since 1950s space race between the United States and the Soviet Union, there have been many futuristic visions of what space travel and tourism would entail: for example, what the kind of conceptual designs and passenger space infrastructure would be available, those visions basing themselves on people's desires to experience the Hollywood science fiction styled of imagination of space environment.
- During 2010s, for the first time in history, space became a new operative environment for privately owned businesses and the attention was drawn to the global power of wealthy individuals, influencing and accelerating the technological revolution both on the Earth and in space environments.



# Pan American World Airways / Hilton hotels

1968



# Commercial New Space tourism industry



GALACTIC

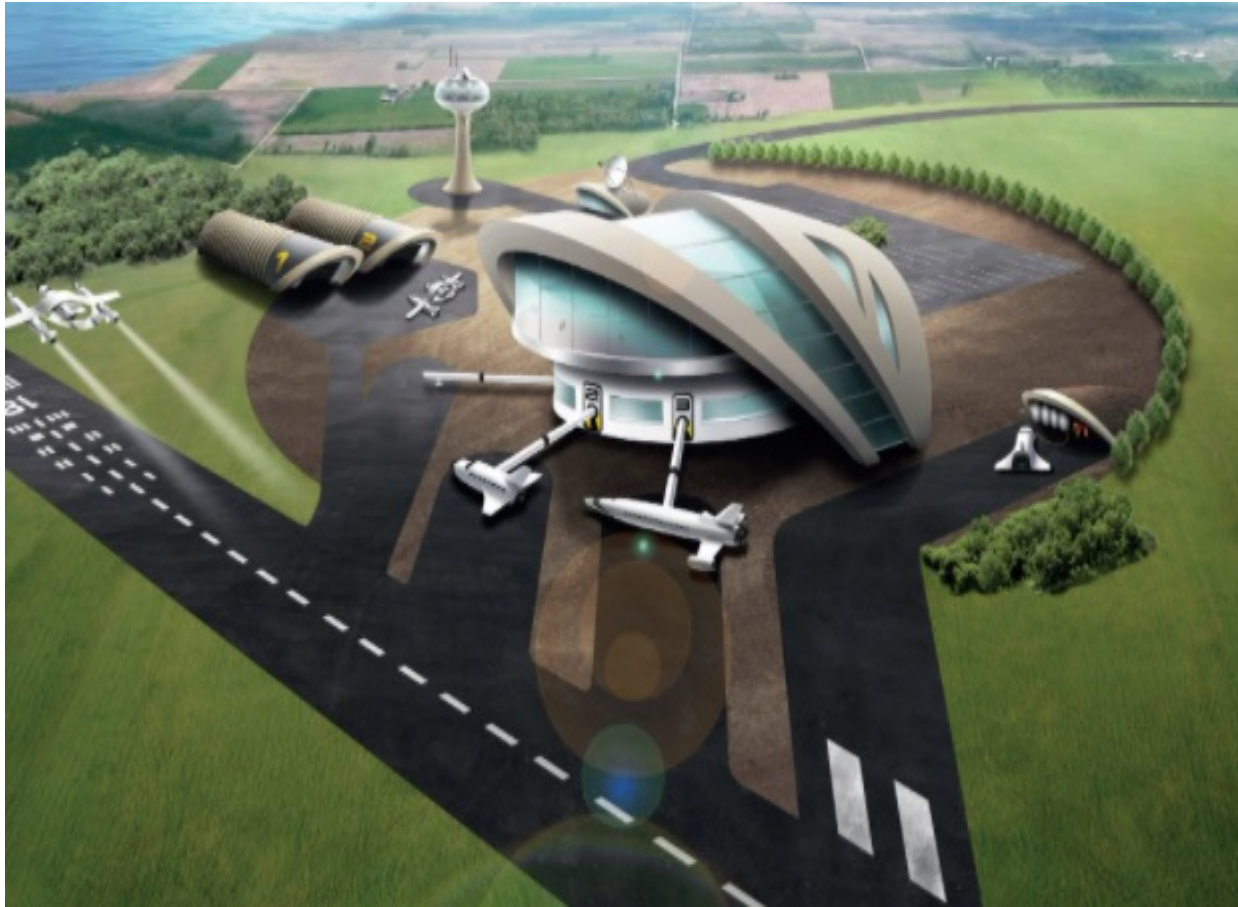




In 2018, a private space company, SpaceX, achieved the world's first repeat flight of an orbital class rocket, presenting a historic milestone for full rocket reusability. Hence demonstrating operational level sustainability in a way that had not been seen in previous governmental-led "Old Space" industry.

Current commercial space tourism operators include Virgin Galactic, Blue Origin, Space X and NASA – more to emerge in the future (e.g. high altitude space ballooning; Space Perspective).

# SPACEPORT CORNWALL



# Wenchang Space Launch Centre

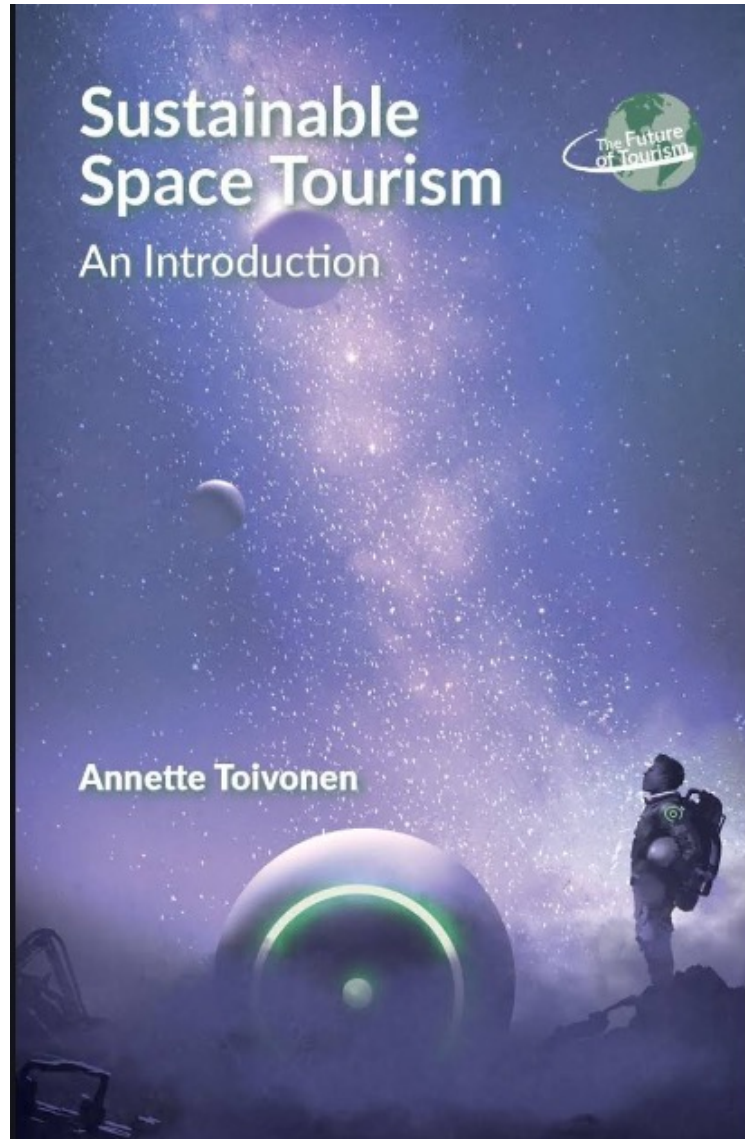


# Future scenarios for sustainability in New Space tourism industry:

- Through the planning of global space regulations
- Through improving global fairness
- Through the implementation of virtual and technological innovations.

Reference: Toivonen, A. (2022). The emergence of New Space: a grounded theory study of enhancing sustainability in space tourism from the view of Finland. PhD thesis. University of Lapland. Acta electronica Universitatis Lapponiensis. <https://urn.fi/URN:ISBN:978-952-337-311-2>





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