

About SpaceTech Analytics

SpaceTech Analytics is a specialised think tank in the area of SpaceTech innovation profiling, business intelligence, and investment analytics. The company is dedicated to producing powerful data mining and visualisation systems; interactive analytics tools; and industry reports offering deep technical insights, business intelligence, and strategic guidance in the high-growth and significant opportunity areas of the SpaceTech industry.

Giving Birth in Space Q3 2021 summarizes key observations in the SpaceTech ecosystem, a rapidly evolving and exponentially growing industry. In it, we have assembled information about key industry trends and created a comprehensive database of more than **20 private companies** aiming to solve questions of human reproduction in space and astronaut well being from **8 countries**, and **50 academic institutions** with the **contribution from 4 professionals** in the industry of human space settlement.



This overview gives a detailed description of the innovative approaches to adverse questions of **Giving Birth in Space** and describes how women physiology changes during and after spaceflights, highlighting the modern concepts for deep space exploration. Overall, this analytical case study offers a one-stop expert evaluation of a novel and dynamic industry of human reproduction in space that is about to open new frontiers for space exploration.

20+
Companies

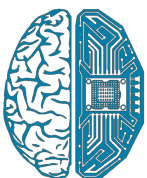
50
R&D Centers

8
Countries

4
contributors

Key Takeaways from this Analytical Case Study:

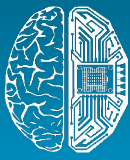
- Nowadays, a lot of private companies and state space agencies worldwide are working on space settlement programs and cover a wide range of technologies from **extracting oxygen and various metals in Martian and Lunar surfaces to quantum telecommunication, artificial wombs, or new generation rockets**. It reflects the paradigm turn from space exploration to space settlement. However, it is just the beginning with private companies ahead of the process.
- The today's era of commercial space flights and habitable Low-Earth Orbit predisposes is accelerating the pace and necessity of experiments and related data concerning **living and procreating in altered gravity environments**. To reach Mars, the human body may need new and extra care: **gene therapy, reproductive assistance, radioprotectors, advanced biomedical technologies and treatments**, to increase chances of successful births and lives on Mars. Terraforming Mars may be required to create a safe child-friendly environment (e.g. artificial magnetosphere to provide an atmosphere providing radiation protection and oxygen).
- **Space radiation, weightlessness** are main hazardous factors for childbirth. Giving birth on Mars will become possible when all these factors are fully researched and resolved. Nevertheless, unexpected physiological, psychological, ethical challenges concerning birth on Mars will arise. **Women are becoming more represented in the space industry (e.g. NASA space programs) and more data are collected on women health in space**.
- **Mars settlement brings plenty of risks** (radiation and microgravity are the most serious among them) that can hazard women health, fertility, and embryo.



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United States



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Massachusetts, United States



Zopherus

Arkansas,
United States



Marsha AI

New York,
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Blue Origin

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United States



ILC Dover

Newark, DE,
United States



Final Frontier Design

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United States



BIOMILO

Durham, North Carolina,
United States



Open Lunar

San Francisco, California,
United States



SpaceX

Hawthorne, California,
United States



Scotland



TCT Aerospace

Edinburgh,
Scotland



Estonia



UP Catalyst

Tallinn,
Estonia



Finland



Solar Foods

Helsinki,
Finland



Canada



Mission Control Inc.

Ottawa, Ontario,
Canada



Netherlands



Maxima

Eindhoven,
The Netherlands



Next Nature Network

Amsterdam, North Holland,
The Netherlands



SpaceBorn United

Eindhoven,
The Netherlands



Switzerland



Aleph Zero

Zug, CH,
Switzerland



Israel



Helios

Thousand Oaks,
California, United States



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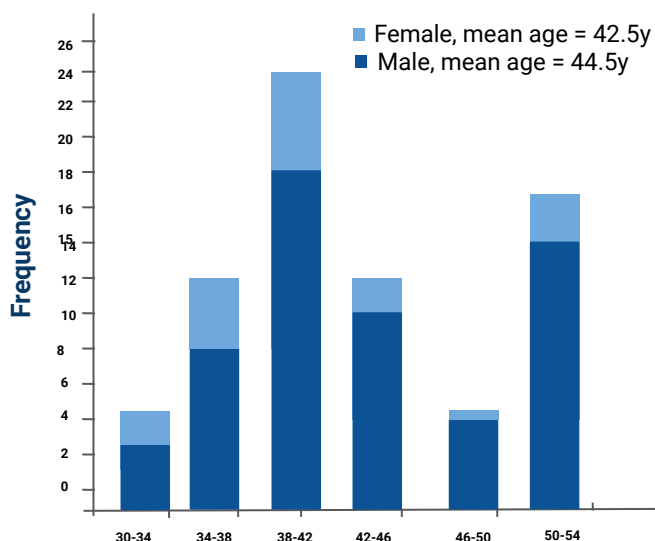


THE UNIVERSITY OF
MELBOURNE



FemTech
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The maximal optimal age to giving birth is 11.5 years earlier than the average age of women astronauts



Female Egg Quality by Age

