

SpaceTech in Switzerland 2021/Q4

Teaser

December 2021

www.spacetechnology.com

TABLE OF CONTENTS

Introduction	2
Methodology and Approach	3
SpaceTech in Swiss 2021 Ecosystem	5
Leading SpaceTech Companies Based in Switzerland	11
Leading SpaceTech Investors Based in Switzerland	25
Distribution of SpaceTech Nonprofits, R&D Centers, and Hubs in Switzerland	34
Swiss SpaceTech Influencers	42
Major SpaceTech Trends and Government Policy in Switzerland	48
Conclusions	58
Disclaimer	60
About SpaceTech Analytics	61

This case study is focused on the state and development of the **SpaceTech in Switzerland** as of December 2021. Switzerland represents one of the most innovative and research-focused spots on the world map. The SpaceTech Industry has seen representation in the Swiss market for several decades now and became a significant sector in the Swiss economy. The case study is based on the analysis of over **70 Swiss SpaceTech companies**, operating in the market with more than **40 investor companies (20+ are Swiss-based)**. Switzerland is also a bustling hive of **R&D companies and Hubs** for the SpaceTech Industry, with **over 20** of them forming the basis for this case study.

With several major Swiss companies achieving significant advances in their sphere in recent years, there are **numerous prospects** for further development of SpaceTech in Switzerland. The country has already achieved **major progress** in developing and expanding the SpaceTech sector, providing the industry with additional levels of technological progress and hosting a significant number of SpaceTech companies, events, and activities within its borders.

SPACETECH ANALYTICS METHODOLOGY

Database

Identification of relevant:

- Companies
- Investors
- Hubs
- Universities and Research Centers
- Government Ministries, Departments , and Agencies
- Space Associations

Applied Research & Analytics Methods

Descriptive
Analysis

Mixed Data
Research

Exploratory Data
Analysis

Comparative
Analysis

Qualitative Data
Collection

Data Filtering

Data Sources*

Media Overview
(Articles, Press Releases)

Industry-Specialized
Databases

Publicly Available Sources
(Websites)

Industry Reports and
Reviews

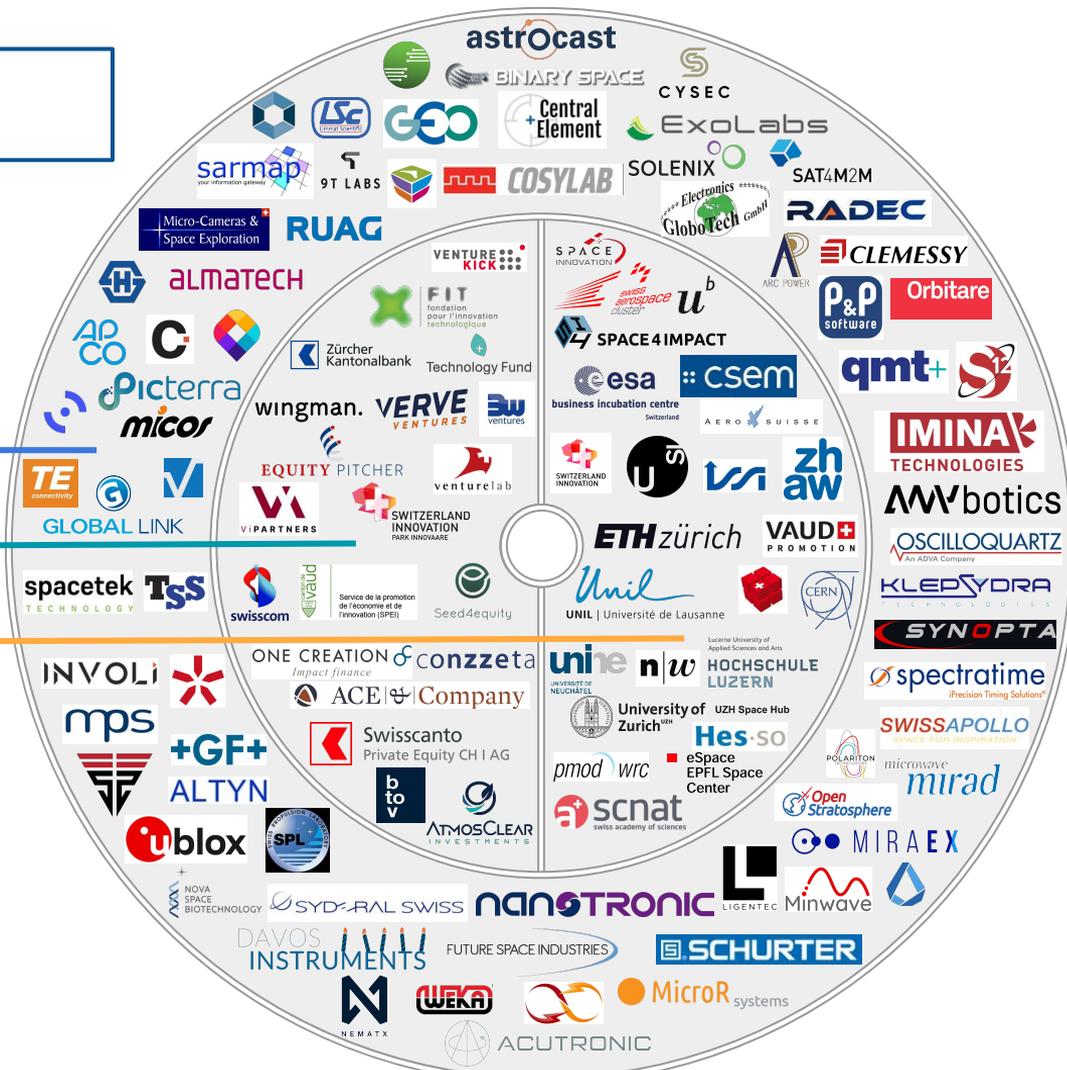
Interviews with Industry
Leaders

Relying on various research methods and analytics techniques, this report provides a comprehensive overview of the space industry. This approach has certain limitations, especially when it comes to leveraging publicly available data sources and secondary research. SpaceTech Analytics is not responsible for the quality of the secondary data presented herein; however, we do our best to eliminate said risks by using different analytics techniques and cross-checking data. Please note that we did not deliberately exclude certain companies from our analysis. The main reason for their noninclusion was incomplete or missing information in the available sources. Concerning the investors in the main database, we include only institutional investors who have invested into SpaceTech or SpaceTech-related companies. The companies included in the database belong completely to the SpaceTech Industry; that partially belong to it through working with clients from the SpaceTech Industry; or that have separate departments in a SpaceTech company which works in this sector or cooperates with clients from this sector.

SpaceTech in Switzerland
Q4 2021

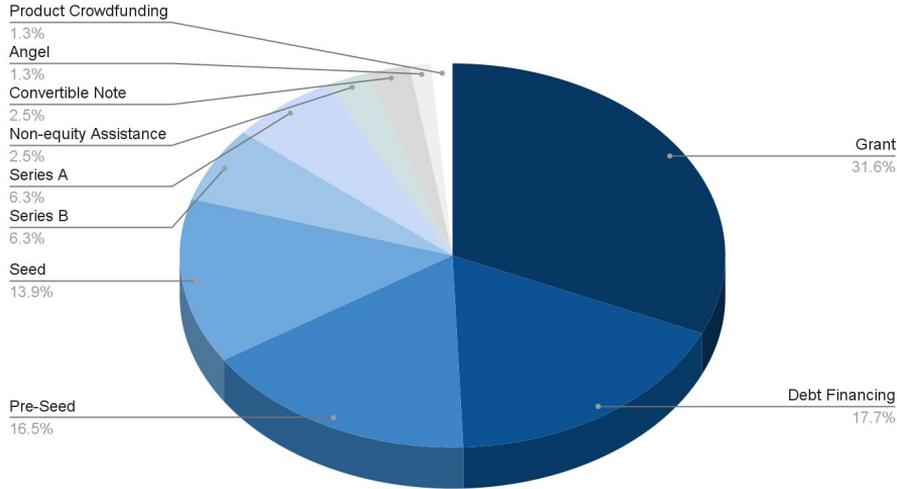
Companies – 73
Investors – 21
R&D and Hubs - 25

- Companies
- Investors
- R&D and Hubs

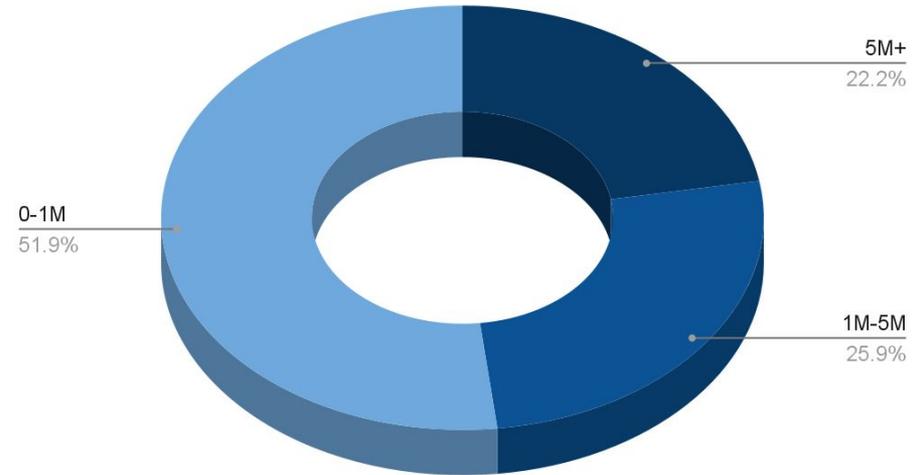


SWISS SPACETECH COMPANIES FUNDING

Distribution of Companies Fundinas by Staae

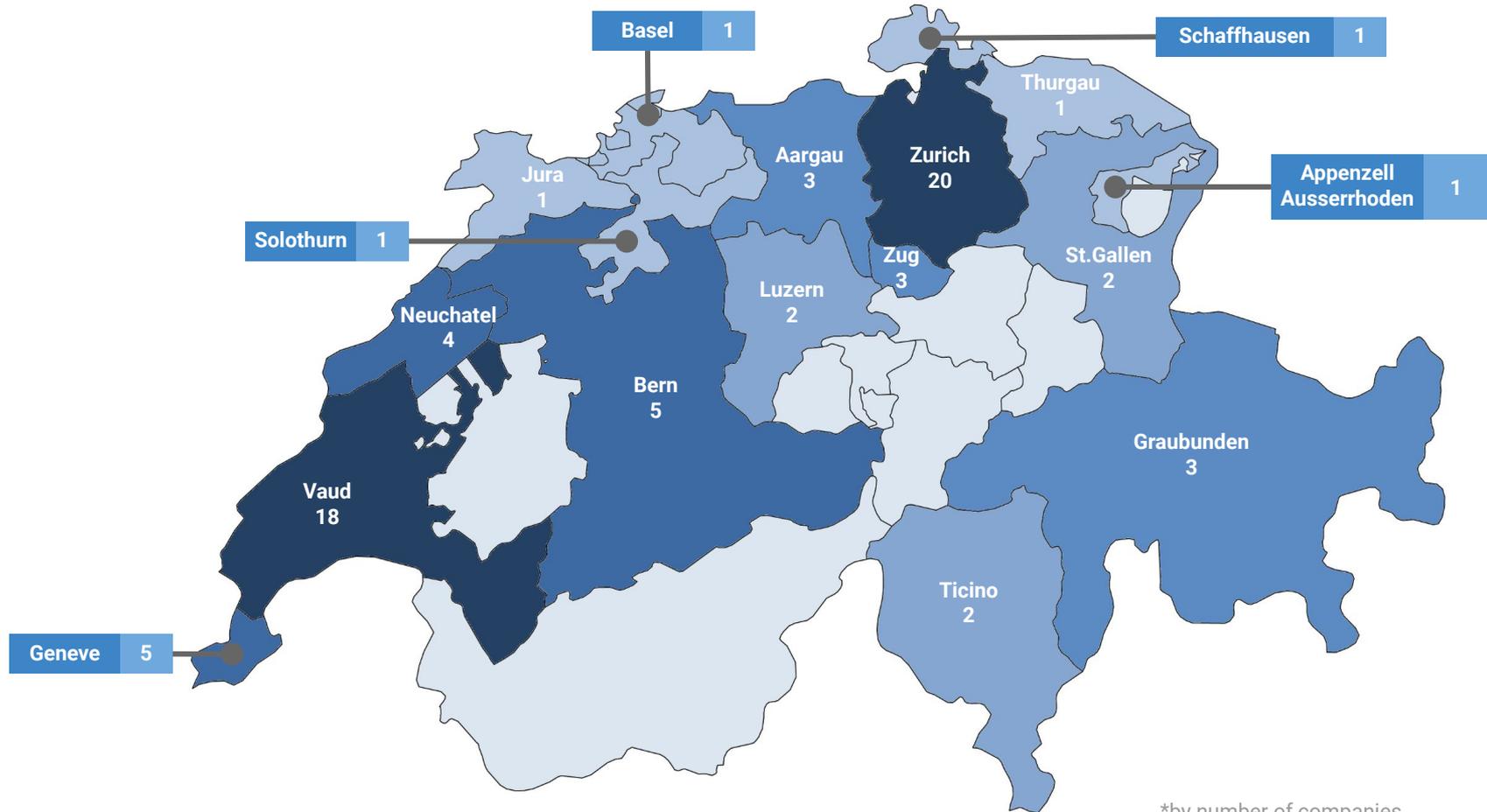


Distribution of Companies by Total Funding Amount (in USD)



The majority of the funding toward Swiss companies comes in the form of grants by different companies and foundations, representing a third of the overall funding received by them. Another third is represented by seed and pre-seed fundings distributed almost equally between each other. Interestingly enough, there is also a crowdfunded company in the Swiss Space sector. More than a half of the companies do not get funding of more than \$1 million. The other half, however, is not limited. Almost a quarter of Swiss Space companies received a total funding of more than \$5 million.

SWISS SPACETECH COMPANIES REGIONAL REDISTRIBUTION*



*by number of companies

ESA BUSINESS INCUBATION CENTRE

The European Space Agency has established a set of business incubation centers around Europe. Switzerland is not an exception, and this incubation center is also managed by **Zurich ETH** in collaboration with **Venturelab**, **Impact Hub Zurich** and **AP Swiss**. ESA BIC Switzerland offers extensive support packages for entrepreneurs with a link to space technologies, such as navigation and positioning, communication techniques, Earth observation, materials, processes, signals, and robotics. The center helps

startups that are less than 5 years old to realize their innovative ideas and transfer technologies from space to Earth or from Earth to space. It is possible to get technical, business, and financial support as well as networking and community building while working with the center.

Opportunities:

Up to €200k in seed financing

Access to broad network of corporate and research partners

Access to ESA network and facilities and European ESA BIC network

Business support by selected corporations

Technical support of up to 80 hours by space companies and related research organizations

Networking among relevant start-up peers and access to Impact Hubs in Switzerland

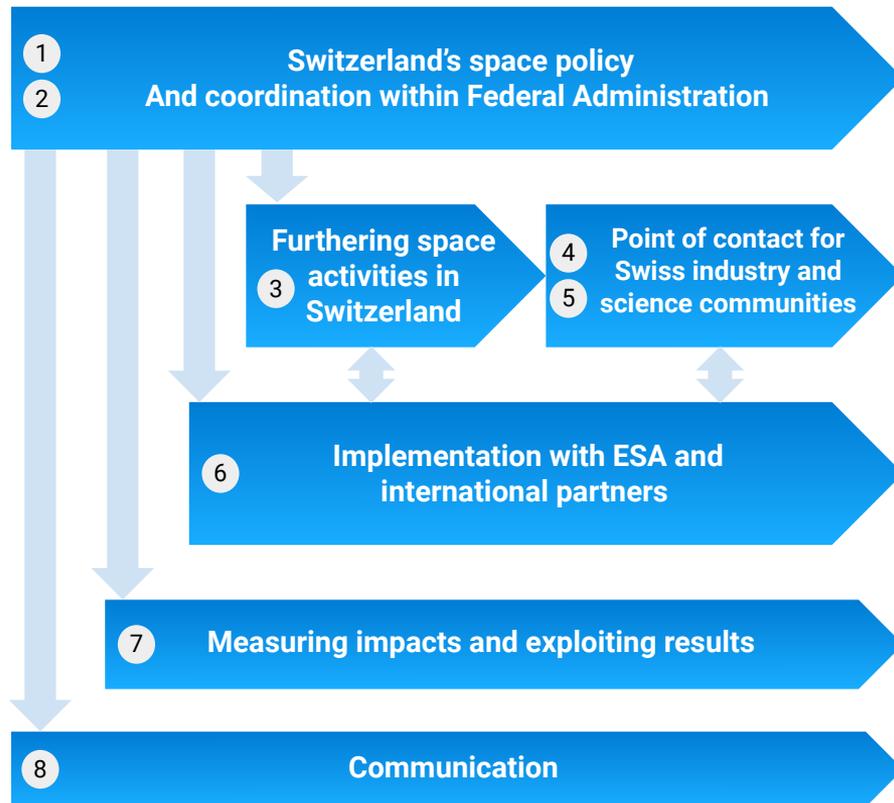


SWISS SPACE POLICY

Space activities occupy an important place in our society. Beyond their scientific contribution to exploring the Earth and the universe, they have become an integral part of our daily lives. We rely on them for so many things: **satellite-based global telecommunication services, road, maritime and air navigation systems, and Earth observation** for more reliable weather forecasts and a better understanding of climate change.

Switzerland has been actively involved in this field since the initial space age. It is a competitive and reliable partner in the space sector, both within Europe and across the globe. Thanks to its innovative strength and precision technology, Switzerland has gained a **solid and acknowledged position** in strategically significant fields.

Switzerland does not have its own national space agency. It does most of its research and development within the framework of the **European Space Agency's activities and programs**. The Swiss Space Office, which is the **SERI division** responsible for space matters, performs the following tasks:



ESTABLISHED RESEARCH INSTITUTES

Switzerland is home to a number of research institutions that are internationally renowned for their work and for effectively solving global problems via local solutions that advance humanity towards new and much-needed technologies.

NCCRs

Paul Scherrer Institute (PSI)

Based in Aargau, PSI is one of Europe's leading research institutes in the physical sciences.

European Organization for Nuclear Research (CERN)

Based near Geneva, CERN provides opportunities for scientists to study the elementary particles that make up the universe.

The Large Hadron Collider (LHC)

Built in 2008, the LHC is a particle accelerator aiding in the quest to explain how particles obtain their mass.

The European laboratory of IBM

Based in Rüschlikon, this is a giant American company that has maintained a research laboratory in Switzerland since 1956.

The Institute for Snow and Avalanche Research (SLF)

Based in Davos, this is part of the Swiss Federal Institute for Forest, Snow, and Landscape Research. Its scientists conduct research on natural hazards.

SWISS SPACE CONTRIBUTION

Crewed space missions



STS-46 in 1992. European Retrievable Carrier EURECA
Atlantis



STS-103 in 1999. Hubble Servicing Mission 3A
Discovery



STS-61 in 1993. Hubble Servicing Mission 2
Endeavour



STS-75 in 1996. TSS-1R Italian mission
Columbia

Offices

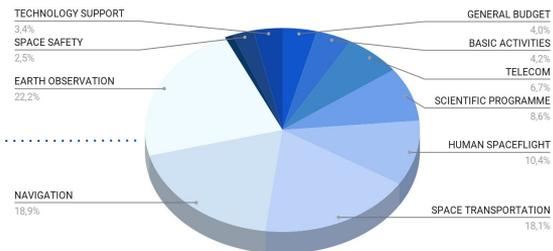
Headquarters, CFAS, and IKAR: **Bern**

Delegation to the European Space Agency: **Paris**

Delegation to ESA at the European Union: **Brussels**

Budget

≈3.4% are
Swiss



ESA Budget

TOP SWISS INVESTORS



Peter Letmathe
CEO of Nestle SA,
Investor



Beat Schillig
Founder of Venturelab



Steffen Wagner
Co-Founder of Verve
Ventures



Christoph Schenk
Vice-CoB of Swisscanto



Arnd Kaltfofen-Ehmann
Managing Partner of VI
Partners AG



Sascha Horrig
Founding Partner of
Equity Pitcher



Alain Nicod
Managing Partner of VI
Partners AG



Alexander Schlaepfer
Partner in Swisscom
Ventures, Investor



Laurent Bischof
Venture Capital Investor
& Entrepreneur



Pascal Mathis
Founding Partner of
Wingman Ventures



Alex Stöckl
Founding Partner of
Wingman Ventures



Steve Salom
Start-up Operator,
Advisor, Investor

SpacePharma is a Swiss company, originating in Israel, capable of designing spacecraft and payloads to conduct scientific biological experiments in space.

SpacePharma's labs come in different forms. They can construct spacecraft, satellites, and systems installed on the International Space Station. It is also possible for the labs to be either crewed or uncrewed. The company is designing solar panels, telecommunications, liquid systems, pumps, reaction chambers, sensors, spectrometers, and all the other hardware needed for such research.

The technologies used by SpacePharma also vary widely. They use organ-on-a-chip technology, which allows to grow tissue cultures or liver cells and is used for biological research, and a lab-on-a-chip technology, which deals with the chemical structure and liquid flow in space. Their future **MoTi satellite** is expected to be the first pharmaceutical production facility in space.

SpacePharma works with **NASA**, the **European Space Agency**, the **Italian Space Agency**, and **Moffitt Research Center** in the USA.



Active Researches Conducted in Space

Enzymatic
reaction

Peptide self
assembly

Droplet
coalescence

Crystallization of
pharmaceutical
ingredients

Human
physiological
adaptations to μG

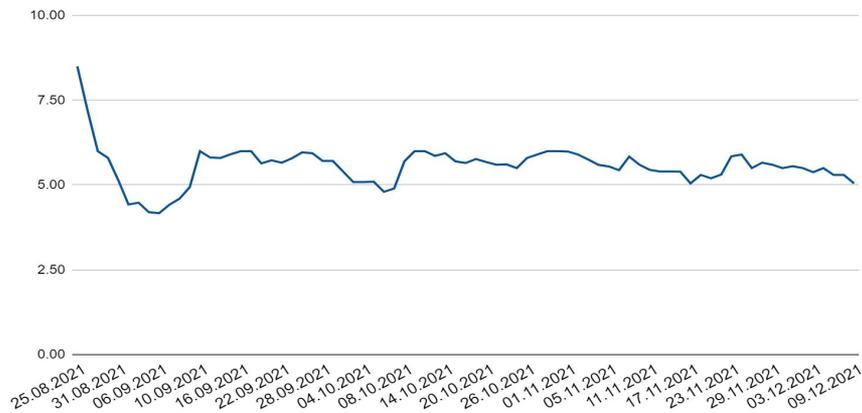
Organometallic
catalysis

Polymorphism of
organic crystals

Bacterial
responses to μG
conditions

DNA expression
and
reconfiguration

Astrocast Stock Price Dynamics 2021 (in CHF*)



Stock Exchange	Oslo Stock Exchange	Mean Daily Return	-0.69%
Ticker	ASTRO.OL	Volatility of Daily Returns	5.63%

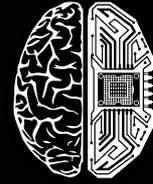
Astrocast is a Swiss satellite communications company based in Lausanne. It is offering cost-effective bi-directional IoT communication services globally.

The company is currently in the process of getting the 100-nanosatellite network operational, being able to provide the full globe coverage and allow low-latency transmissions in the network. Astrocast expects the project to be completed by 2024.

As for Astrocast's stock performance, it is on the Oslo Stock Exchange with the ticker symbol of **ASTRO.OL**. The stock started trading on **25/08/21**, with its first day closing at **85.00 NOK** per share (8.50 CHF*). In the first week the stock experienced a significant price drop, but later stabilized in the range of **50.00-60.00 NOK** per share. (5.00-6.00 CHF*). Due to this drop and overall short-term performance of the company's stock, the negative mean daily return of **-0.69%** is redundant, and if adjusted to after the drop, it equates to approximately **-0.03%**. The volatility remains high, so major rises and drops in stock price remain possible.

KEY POINTS

1. Swiss participation in the **European Space Agency (ESA)** has enabled Swiss research institutes and companies to acquire excellent competencies in state-of-the-art scientific and technological fields.
2. Switzerland has a number of companies, that date back to the start of 20th century and have their **roots in aeronautics**, gradually switching to the SpaceTech Industry. But the peak of company foundings in the country occurred between **2014-2018**, with 2018 peaking at **seven companies founded**.
3. A lot of funding, coming from SpaceTech investors, is focused on the new upcoming ventures and startups, with the Swiss companies being a priority. Some such investors include the **Foundation for Technological Innovation (FIT)**, **Venture Kick**, and **Zürcher Kantonalbank**.
4. Switzerland's status as a **spacefaring nation** can also be attributed to pioneers such as the **astrophysicist Johannes Geiss**, who was 93 when he died in February 2020. His research group at the **University of Bern** developed the solar wind collector that was unfurled by **Buzz Aldrin** on the Moon in 1969.
5. The Swiss space industry directly provides around **a thousand jobs**, spread across **nearly eighty businesses** – most of which are SMEs that supply large space companies in niche segments.
6. Swiss has a **SERI (State Secretariat of Education, Research and Innovation)** division called the Swiss Space Office. It is involved in processes such as developing Switzerland's **national space policy**, coordinating the activities within the **Federal Administration**, serving as a **point of contact** for different institutions and users, and representing Swiss interests with the European Space Agency.
7. The **ClearSpace-1 mission** is an ESA Space Debris Removal mission led by ClearSpace SA (**A spin-off of the EPFL in Lausanne**) and its industrial team.
8. With its **dozens of universities and institutes of technology**, Switzerland is at the forefront of research in many areas. The federal government supports academic research through the **Swiss National Science Foundation (SNSF)**. The SNSF funds research programs and also draws up guidelines for long-term research policy.



**SpaceTech
Analytics**

DISCLAIMER

The information and analysis provided in this document have been prepared by SpaceTech Analytics (STA). The sources of information contained herein are deemed reliable by STA. However, STA makes no representations regarding the accuracy or completeness of such information. Though the information herein is believed to be reliable and has been obtained from public sources believed to be reliable, we make no representation as to its accuracy or completeness. Hyperlinks to third-party websites in this report are provided for reader convenience only. Opinions, estimates, and analyses in this report reflect the opinions of STA as of the date of this report. STA has no obligation to update, modify or amend this report or to notify readers in the event otherwise that any topic, opinion, estimate, forecast, or analysis set forth herein changes or subsequently becomes inaccurate. This report is provided for informational purposes only. It may contain errors and is subject to revision.

CONTACT US

www.spacotech.global
info@spacotech.global