



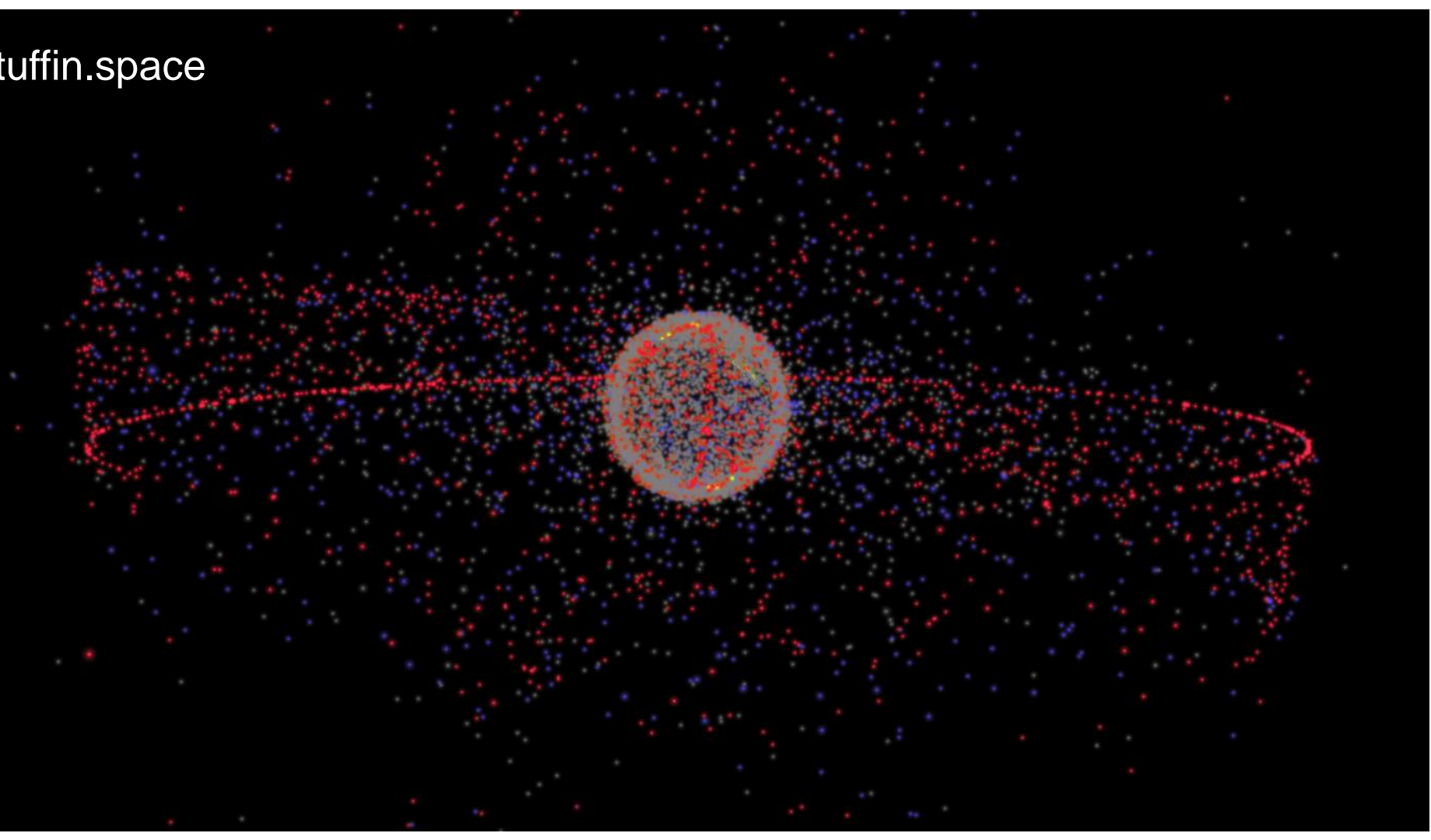
# INNOVATION MANAGEMENT AT SSC

## SPACE INNOVATION FORUM

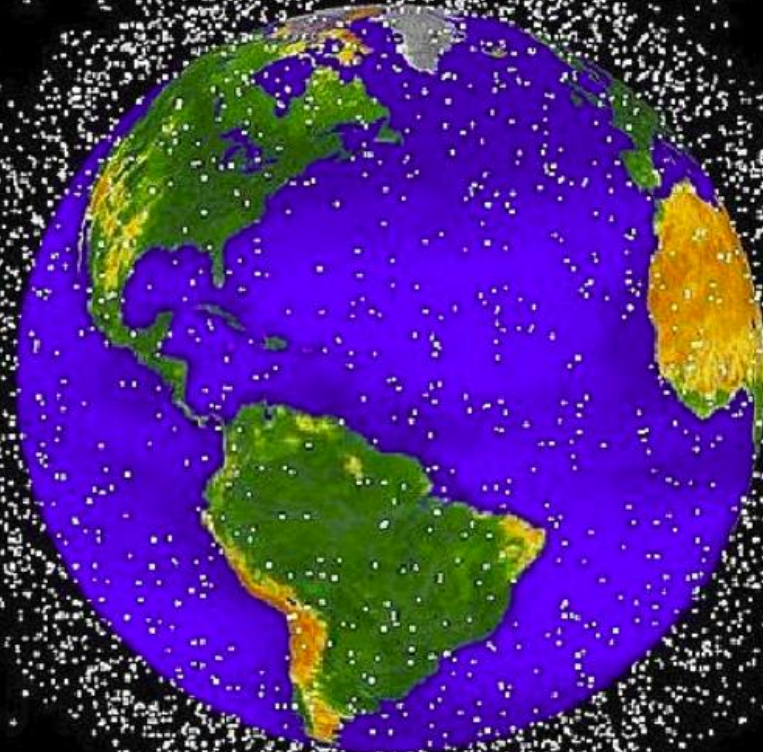
Mats Tyni

Nov 14, 2017

stuffin.space







# PARADIGM SHIFT

NEW SPACE IS HERE TO STAY



Thousands of new missions underway!

- Virgin Galactic
- SpaceX
- Blue Origin
- Worldview
- zero2infinity
- Spire
- Planet
- Urthecast
- Open Cosmos
- GomSpace
- Atlas
- Leaf Space
- Spaceflight

# CHALLENGE

SHORTCUT TO FUTURE - INNOVATION IS KEY



- Cut the corners
- Move directly to Space 2.0
- Digitalization
- Reuse knowledge from mature industries
- Automation, WARP
- Artificial intelligence
- Machine Learning



# GROWING DEMAND FOR NEW SERVICES

## NEW ACTORS ENTERS THE SPACE ARENA



- Space Situational Awareness (SSA)
- Low latency ground segment services
- Exploration
- Testing
  - Sounding rockets
  - Balloons
  - Drones
  - Rovers
  - Reusability
- Smallsat Express



# GAME CHANGE IN SPACE INDUSTRY

INNOVATION IS KEY TO SUCCESS




- How to be innovative with limited R&D resources?
- Attract brilliant people
- Cooperation and partnership
  - Participate in ESA and EU funded initiatives (e.g. ARTES and others)
  - Universities, PhD initiatives, Master's Theses (LTU)
  - Research organizations (IRF)
  - Industry cooperation, expert consultancy





# SSC TECHNOLOGY INITIATIVES

OPTICAL SATELLITE SPACE TO GROUND COMMUNICATION

A satellite is shown in space, with a bright sun in the upper left corner. The satellite is a dark, rectangular object with several solar panels extending from it. A bright orange laser beam is being transmitted from the satellite towards the Earth's surface. The Earth is visible in the lower right, showing a mix of green land and blue oceans.

**ESA Tesla-C project together with TAS Switzerland**  
Ground terminal network design  
Simulations & weather impact models

**BridgeSat**  
Optical Ground terminal hosting

# SSC TECHNOLOGY INITIATIVES

## SOFTWARE DEFINED RADIO INITIATIVE



**Software-defined radio for ground-based satellite communication**

**Participants:** LTU Division of Space technology and SSC.

The subproject is intended to develop a system for ground stations that would **enable satellite communication based on flexible SDR technology**, and to investigate new possibilities within communication with satellites enabled by this technology.

# WE HELP EARTH BENEFIT FROM SPACE



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