



SURE5.0

Industry 5.0 webinar

When Industry 4.0 meets 5.0

A practical approach

M. Fiammengo, Director Organization



Funded by the
European Union

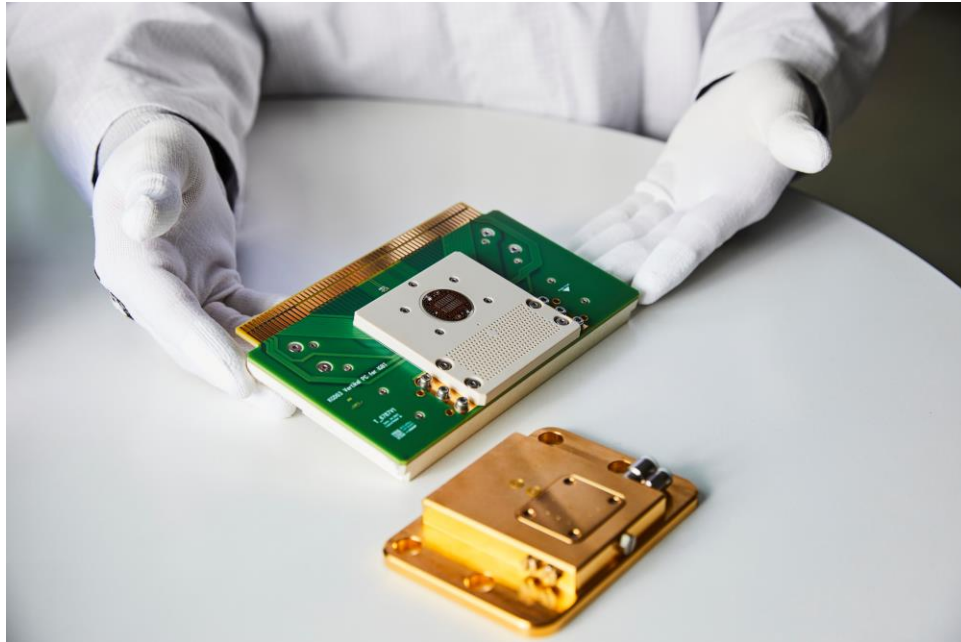


Please, turn off your camera
and mute your microphone

T. I. P. S.

SURE5.0

Your specialist for probe cards
and test interfaces

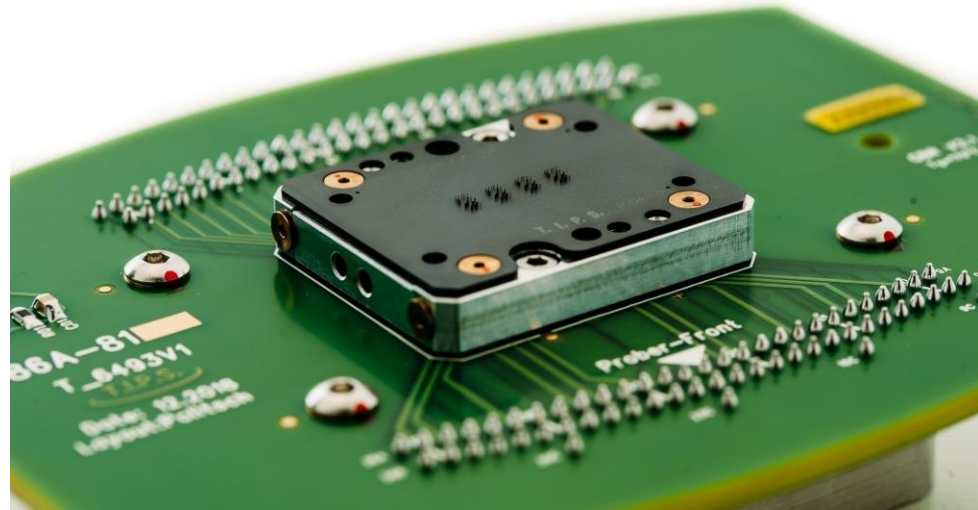
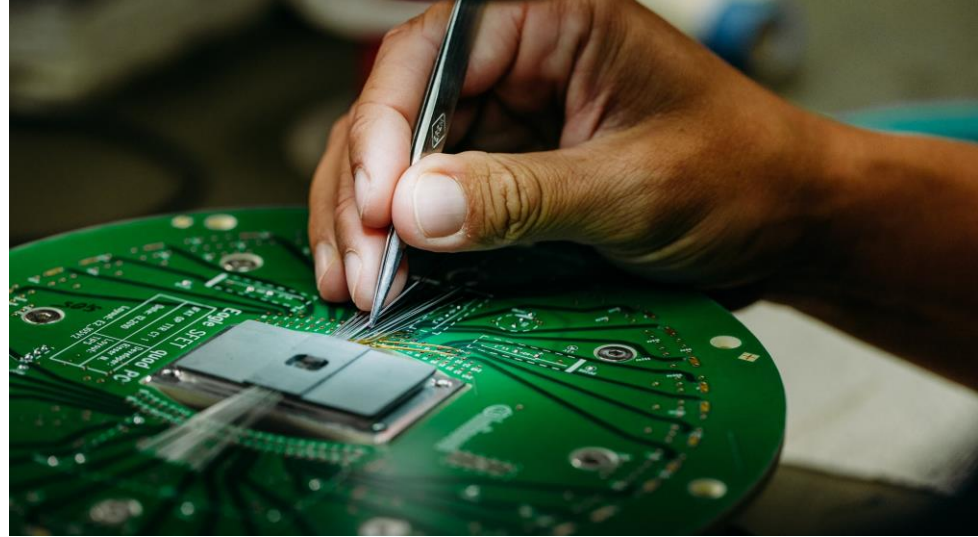


Funded by the
European Union



Products

- Probe cards technologies / applications
- Test boards
- Mechanics
- TIPS Probe Refresher TPR-HDXL



Funded by the
European Union

Here we are



- R&D & Design
- Manufacturing
- Maintenance & support
- Administration & Sales



Funded by the
European Union

The Pillars

SURE5.0

Resilience



Sustainability



Human centricity



Funded by the
European Union

T. I. P. S.

Technical Innovation – Physical Solutions

The Battlegrounds

SURE5.0

Corporate Culture



Infrastructure



Complexity



Funded by the
European Union

T. I. P. S.

Technical Innovation – Physical Solutions



Act instead of react

- Teamwork
- Creating a vision
- Integrating people
- Focus on alignment

Fostering curiosity, collaboration & awareness

- Integration of suppliers & customers
- Re- and Upskilling
- Flexibility
- Job rotating





Improving workflows

- Process design
- Value stream

Drive Operational Excellence

- Integrating CIP into PWX
- Standardization, Digitalization & Automatization
- Alignment with QM

From Data to Information

- Analytics
- Business Intelligence





From 4.0 towards 5.0

- Response Plans
- Cyber-Physical systems
- TMS Platform: Connecting people, products and technologies
- UI/UX Design of applications
- API's

Cyber Security

- Holistic approach

„The more you rely on Digital tools, the more important is the protection of the digital and cyber physical systems.“





SURE5.0

Thanks for your attention



www.sureproject.eu



Funded by the
European Union



SURE5.0

Industry 5.0 webinar

Digitalisation and Materialisation



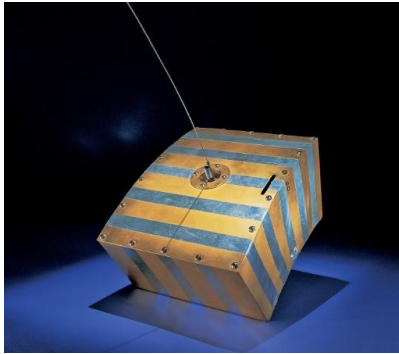
Funded by the
European Union



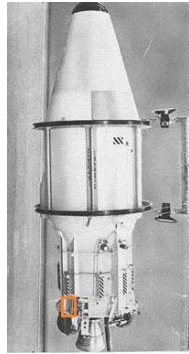
Please, turn off your camera
and mute your microphone

Inception - hitchhiking to orbit

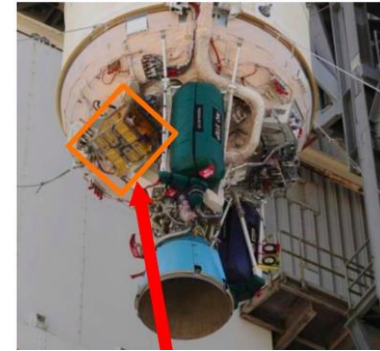
- Launched as a secondary payload
- Not to disturb the primary payload
- Off-the-shelf components
- Modular design



1961 - OSCAR 1 on Discoverer 36

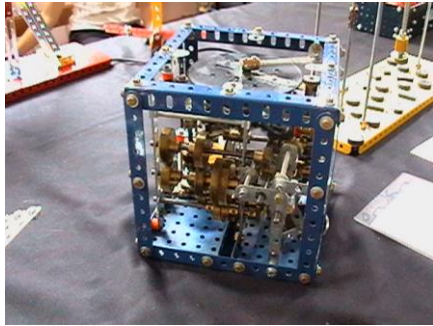


P-POD

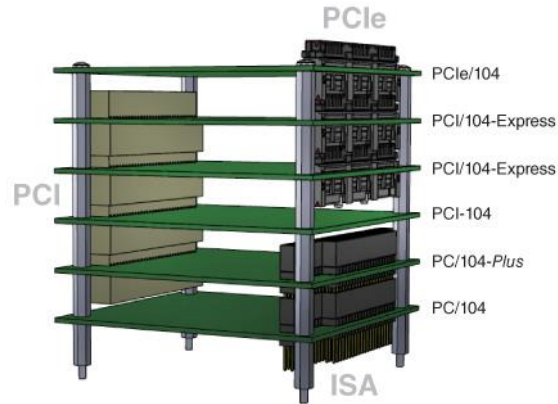


2021 CubeSat integration on Atlas-V

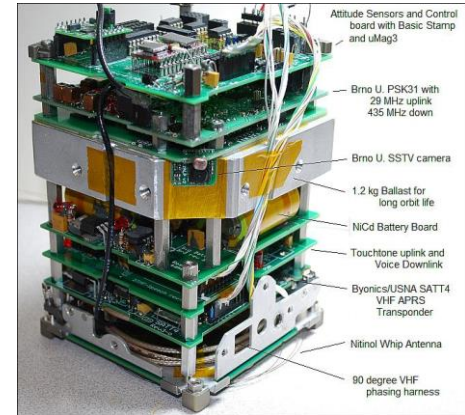
Inside the Cube



Meccano
Est.1898



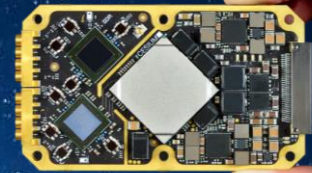
PC/104
Est.1992



PSat2 (OSCAR 104)
2019



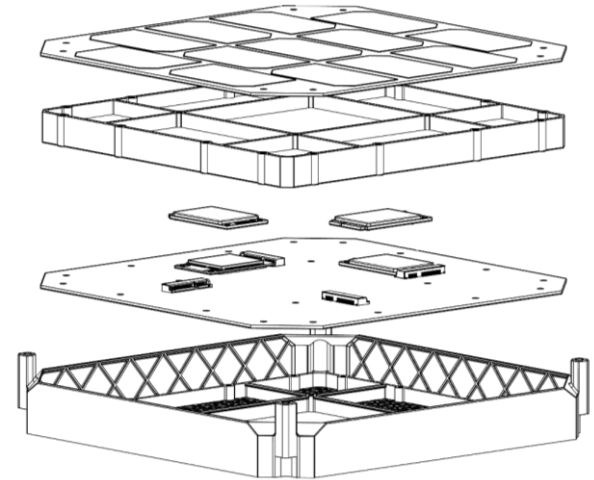
- Constellations - Mass production demand
- Small launch vehicles – no secondary payloads
- Smaller boards and connectors, serial interfaces



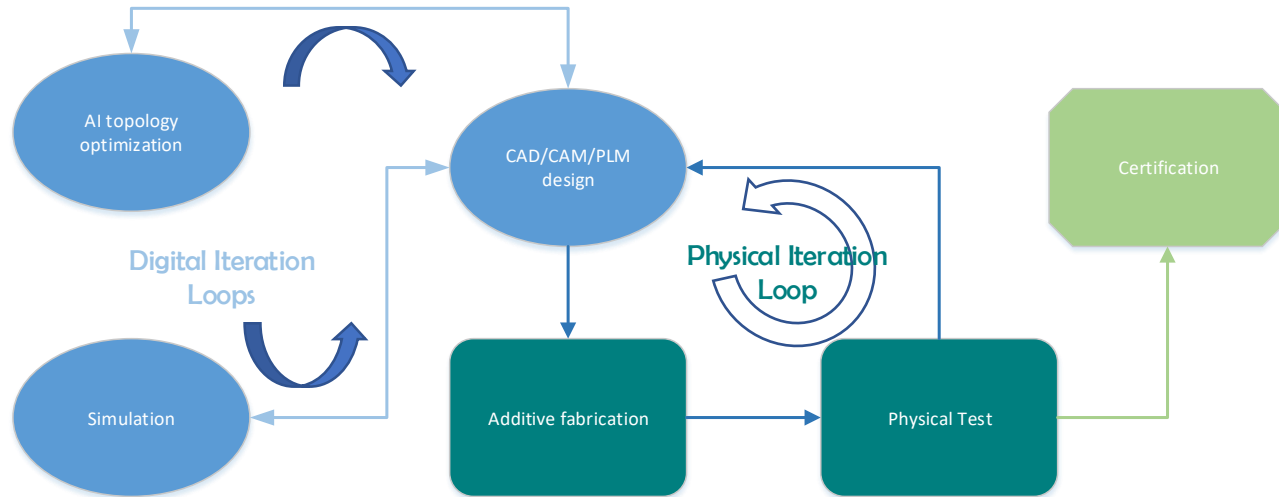
Organization	Number Launched	Target Number	First Launch	Form Factor
Planet Labs	519	>150	2013	3U
Spire	160	>150	2013	3U
Swarm Technologies	177	150	2018	1/4U
GeoOptics	9	50	2017	6U, 12U
Kepler Communications	19	140	2018	3U, 6U
SatRevolution	7	1024	2019	6U, 2U

Following the trends

- Chassis to monocoque. Cube to flat. Stack to array
- Multifunction Structure by Additive Manufacturing
- Planar configuration – open access
- Design for manufacturability – robotic friendly



- Advanced Manufacturing from a parametric model
- Reconfigurable layout by adjusting parameters to specific mission/user
- Digital iteration over physical iteration



- Physical prototypes manufactured
- Value chains established
- Patent application filed
- Space Qualification scheduled
- A better understanding of the Industry 5.0
- Draft plan for the company structure

Lessons learned:

1. New technologies like AM have their advantages along with their limitations.
2. Qualification and certification is crucial





SURE5.0

Thanks for your attention



www.sureproject.eu



Funded by the
European Union



SURE5.0



TURNCIRCLES



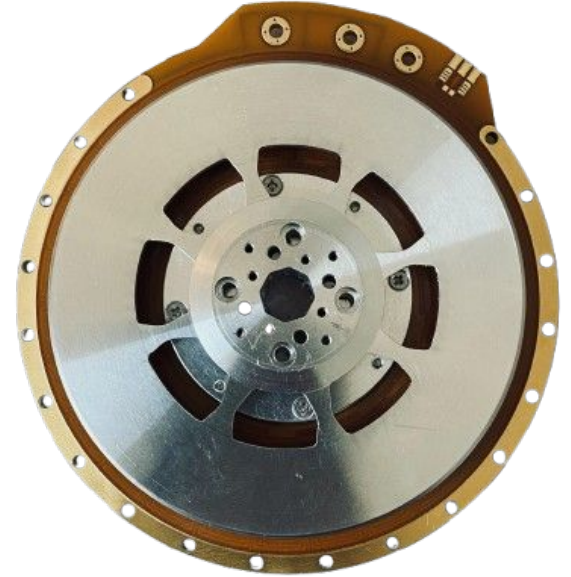
Funded by the
European Union

WHAT WE DO

SURE5.0



We make
custom built,
axial flux,
BLDC motors
with **PCB stator**
technology.



Funded by the
European Union

CURRENTLY

SURE5.0

https://turncircles.com/axial-flux-light-weight-custom-electric-motor

TURNCIRCLES

Power output (P_{out}) 6200W

Input power (P_{in}) 6889W

Torque (T) 27.46Nm

CUSTOMIZE ELECTRIC MOTOR

Scale Outer diameter 268mm

Stack Number of Stacks 3

AF24PM-S3-268

Full Name

Email

Notes

SEND ELECTRIC MOTOR SPECS

All our electric motors come with 48 M3 holes at the housing by standard. This can be customized to your need.

12:08 PM 2/3/2025



Funded by the
European Union



Interconnected

DIGITAL TWIN



PHYSICAL

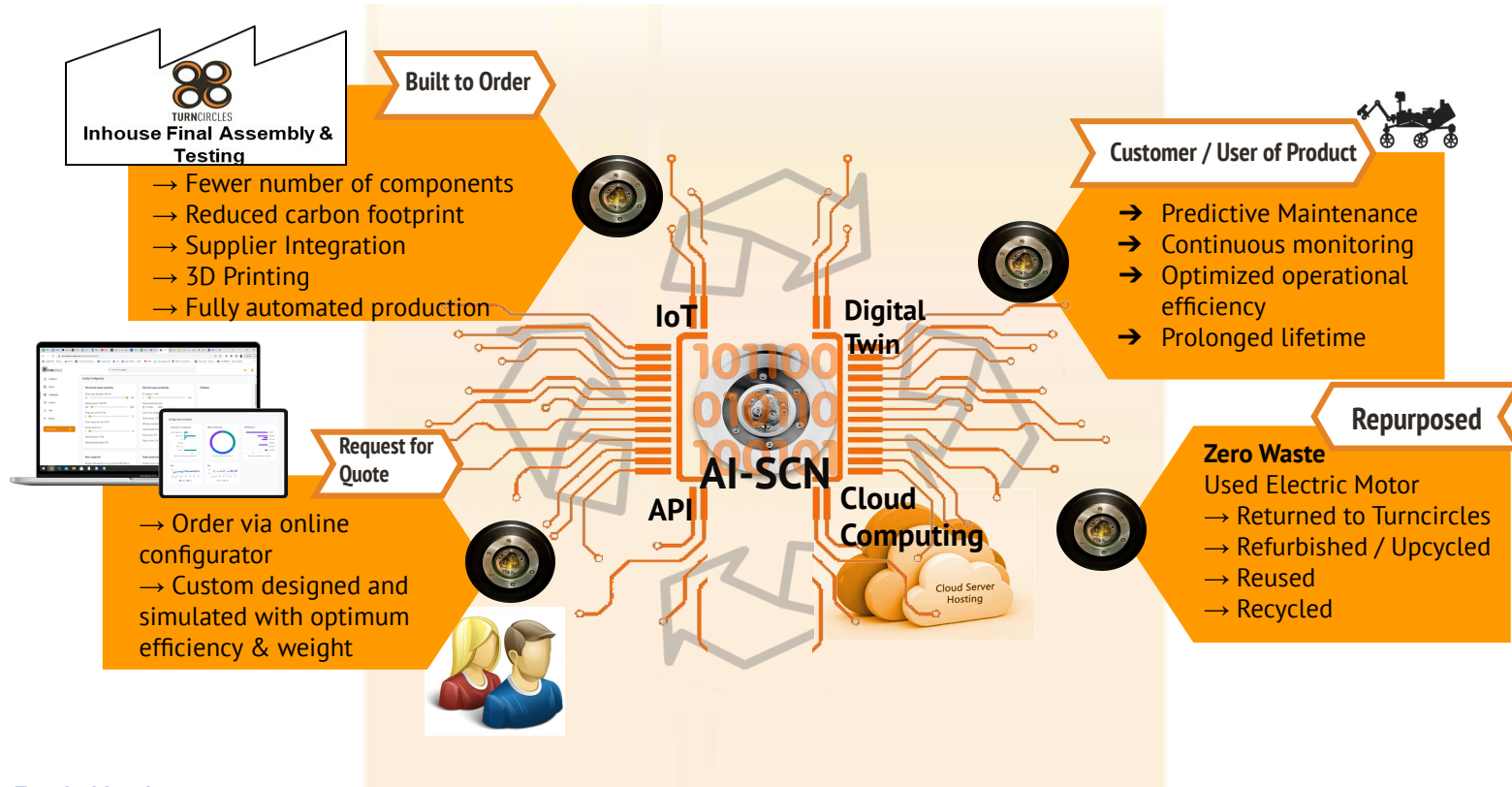


- Interconnectivity
- Real-time Monitoring
- Energy Consumption
- Collaboration
- Automation
- Predictive Maintenance



SUSTAINABILITY LIFECYCLE

SURE5.0



Funded by the
European Union

TRL/IRL ASSESSMENT

Analytical Calculator

Cloud Simulator

Product

IoT Implementation

Intelligence

Before SURE5.0

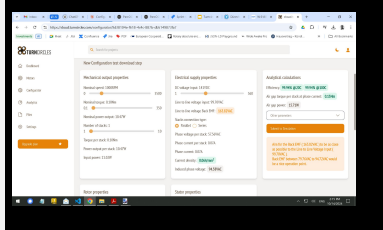
TRL3

TRL0

TRL4

TRL0

TRL0



TRL5

TRL3

TRL4

TRL4

TRL4

After SURE5.0

IRL4

IRL3

IRL7

IRL7



Funded by the
European Union



What we achieved

- Program has accelerated our AI journey
- Not only did we mature our current offerings, but also unlocked new features
- Got into new, valuable partnerships

What we would do differently

- Think outside the Service Providers Catalogue
- Focus on maturing the existing offerings instead of starting new initiatives
- Prioritize Software developments rather than Hardware



We are **glad and thankful** that we've been granted with this **opportunity!**

We believe we **made the most out of it!**





SURE5.0

Thanks for your attention



www.sureproject.eu



Funded by the
European Union