

TRITON-X

Triton-X, the next milestone in LuxSpace's New Space journey

Space is the final frontier of fascination for dreamers and ground-breaking technological innovations have emerged out of those dreams. In that sense, scientists and engineers have played a pivotal role for a long time, leaving now the baton to entrepreneurs and business-oriented players.

The space ambitions of today's dreamers are enabled by the capabilities of the integrated satellite technologies existing today, with microsattellites playing a fundamental role. Today, microsattellites offer performance levels sufficient to meet the needs of a variety of both institutional and commercial space missions with the dual benefit of lower cost and faster time to market. Consequently, the market for commercial microsattellite platforms is becoming more and more competitive, with key features such as total in-orbit cost and delivery schedule (or time-to-market) being critical success factors. Moreover, those features must often be delivered in conjunction with platforms and systems that must be compatible with a wide range of mission types and performance levels.

There is increased awareness of usefulness of information gathered from space borne platforms. Spanning from AIS maritime services (i.e. ESAIL) through earth observation, to safety and situational awareness, the data provided by LEO satellites is of increasing value. Combined with appropriate on-ground-processing, or on-platform-processing, data gathered from LEO satellites supplies highly valuable information for an increasingly wide range of users.

Users are mostly interested in the data product produced by the payload or system without the need of detailed knowledge of the acquisition system or underlying technologies. Therefore, the platform shall seamlessly integrate the payload with minimum adaptation to meet the cost and schedule expectations. This has resulted in an explosion of new applications being developed and rapidly deployed in orbit by an expanding ecosystem of actors.

The target market of the Triton-X platform line is to enable new services with a low recurrent cost facilitated by satellites that can overcome the performance limitations of nanosatellites. The target market niche is between 12U "commercial cubesats" and "large" microsattellites.

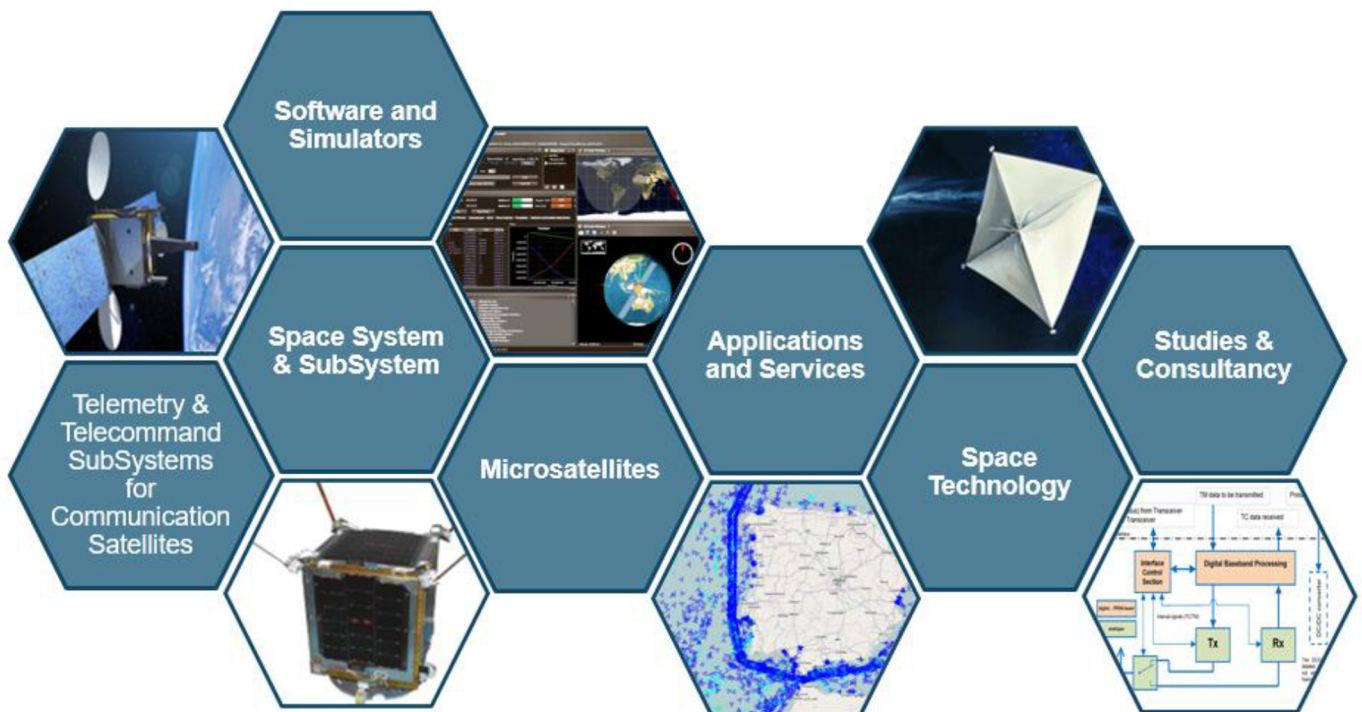
The innovative Triton product line is the backbone of LuxSpace microsattellite capabilities, exemplified by the successful launch of ESAIL in September 2020 based on the Triton-2 platform and currently operating in orbit with best-in-class performance.

LuxSpace has been active in microsattellites business since 2008, from Pathfinder in 2009 until the recently launched ESAIL. LuxSpace's growing customer base contains international agencies like ESA and the European Commission as well as space industry, satellite operators and national institutions.

LuxSpace vision is to become the leading provider of integrated microsatellite and application solutions

Our business lines built over 15 years of experience

- Space systems and subsystems design from early definition through in-orbit commissioning
- Satellite services and applications with a focus on Automatic Identification System (AIS) and Earth Observation (EO)



Our capabilities to be used for our customers success stories

- Microsatellites and subsystems in the 30 - 150 kg class for applications in the field of Earth Observation (EO), telecommunications, science, and technology demonstration
- Embedded software
- Satellite Simulator software
- Application software
- AIS data products including added value services for the maritime industry
- Earth Observation products and value-added service development
- Avionics and payload electronics
- Telemetry Telecontrol & Command subsystems for geostationary and low Earth orbit satellites

LuxSpace's accomplishments are:

Launched in 2009

Pathfinder 2

Design, build and launch of a pre-operational low cost AIS System, exceeding its 6 months design lifetime and lasting 2.5 years, laying the bases for the continuing AIS service provision.



Launched in 2011 / 2012

VesselSat-1 and 2 based on Triton-1 platform

Development, integration and launch of two microsattellites for AIS ship detection, including ground station, operation software, launch contracting, IOT and operator training, from contract to launch in 1 year.



Launched in 2014

Manfred Memorial Moon Mission (4M)

World-wide first private mission to the moon, built as a low-cost mission, accommodating 2 major scientific instruments: Radio communication transmitter to track and locate the spacecraft together with a distributed global ground segment and Radiation dosimeter to measure radiation dose on the trajectory, Kick-off to launch in 5 months.



Launched in 2020

ESAIL based on Triton-2 platform

AIS ship detection with high data rate link, Microsatellite platform developed and designed in collaboration with the European Space Agency, building on the heritage from the Triton-1 platform and extending the payload capabilities, particularly for Narrow-Band Communications applications.



Ready for Launch in 2023

Triton-X

Triton-X is the next step in the journey and represents a novel approach in design and development implementing modular and multipurpose features inherited from processes established in other industries, like automotive. The overarching objective of this approach is to ensure performance and reliability while lowering the recurring cost and still matching a wide range of potential missions in LEO.

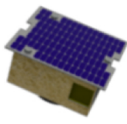
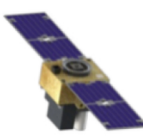
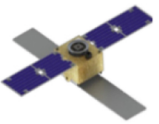
The Triton-X product line comprises a scalable space system and a suite of related services. The system provides high robustness, implemented with a **high level of flexibility**, which allows **easy adaptation** to different payloads, launch and mission profiles, **minimizing the associated non-recurring engineering cost**.

Triton-X addresses a broad range of applications

- Earth observation
- Situational awareness
- Communications and
- In-orbit demonstrations

These domains are anticipated to constitute the bulk of the SmallSat application market.

The platform is conceived for **multiple microsatellite platform classes** (Light, Medium and Heavy), all based on a common set of products, ensuring the optimisation of non-recurring engineering costs emerging from **mission customisation**. Within the same class, further tailoring and specific components selection is possible, with the overarching objective of **matching customer needs with the best fitting platform design**.

Class		Max. P/L mass [kg]	Max. P/L power [W]	Max. S/C mass [kg]
Light (TriX-L)		15	10	45
Medium (TriX-M)		35	75	80
Heavy (TriX-H)		90	140	200

LuxSpace is an innovative microsatellite provider with flight heritage and has a solid product development plan.

LuxSpace's Triton product line provides modular and flexible solutions to our customer needs in comparison to conventional space technology and microsatellites.

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