

Space Safety Period 2

ESA S2P Team,
Belgian Information Day
30.09..2022

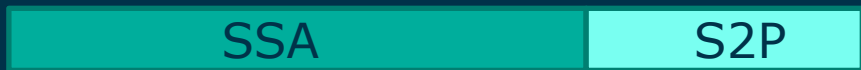
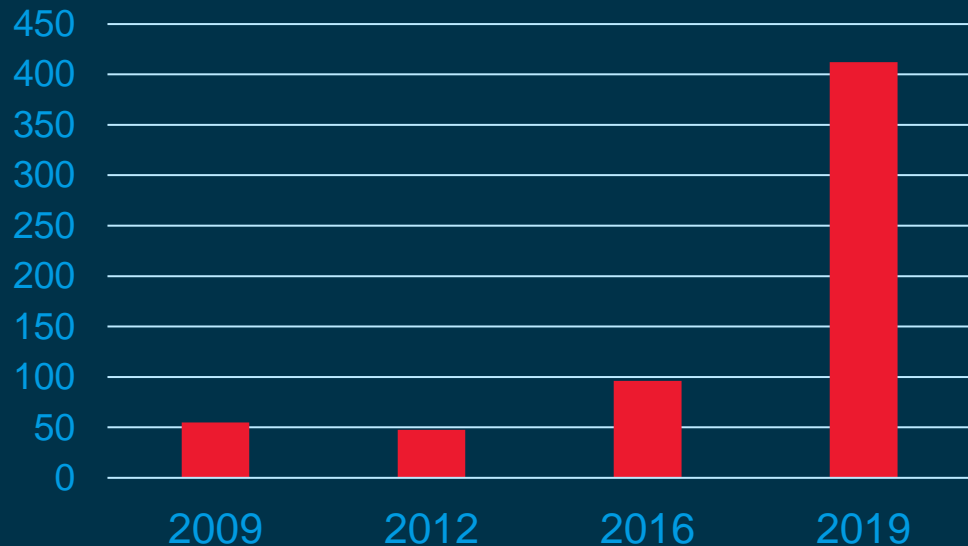


PROTECT ASSETS FROM SPACE HAZARDS



From SSA to Space Safety

History

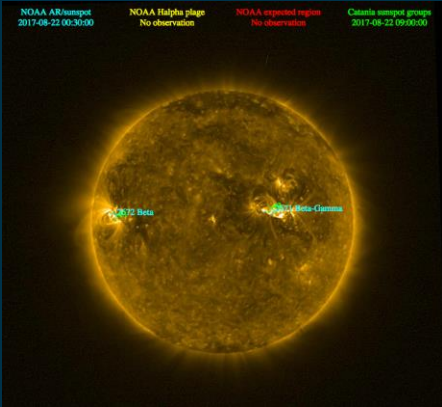




Belgium and Space Weather



- Belgium leads a number of strategic Space Weather activities:
 - Host the Space Weather Service Coordination Centre
 - Operate the European Space Weather Data System
 - Operate Space Weather Payloads (Proba's)
 - Key expertise for Space Weather instrumentation (VIGIL)



SPACENEWS

Intelsat working to regain control of Galaxy 15 satellite

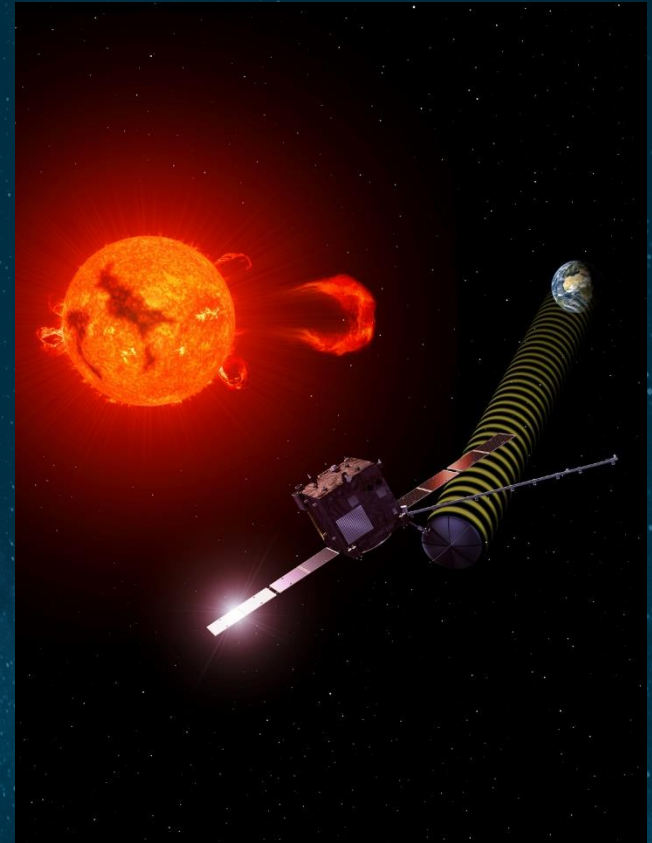
by Jason Rainbow — August 19, 2022



An increase in solar activity will result in more atmospheric drag on satellites and risk damaging or disrupting those spacecraft. Credit: NASA

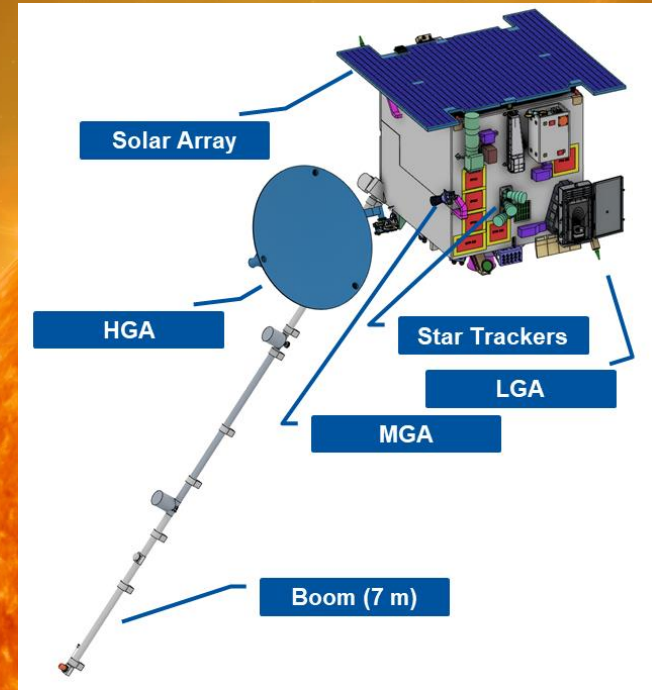
TAMPA, Fla. — Intelsat said Aug. 19 it has lost control of its Galaxy 15 broadcast satellite after it was likely hit by a geomagnetic storm.

High space weather activity likely knocked out onboard electronics needed to communicate with the satellite, Intelsat said, and keep it locked in its geostationary orbit slot at 133 degrees West.



VIGIL Period 2

- Instrument Data Processing Unit (for Plasma Analyser,...) IPS (Institute of atmospheric physics)
- Communications Subsystem Thermal system
- Magnetometre Boom (Frentech)



Asteroid threat! Dangerous 80-foot asteroid speeding towards Earth today; NASA issues warning

A massive 80-foot wide asteroid is headed straight for Earth today, September 19. Here's what NASA said.

By: SHAURYA TOMER | Updated on: Sep 19 2022, 10:54 IST



[View all Images](#)

Worried about the asteroid which is set to make a close approach with Earth today? Know what NASA has to say. (Pixabay)

Earth has witnessed numerous close calls with asteroids in the past few months. August was bombarded with asteroid flybys and the month of September is continuing the trend. 3 asteroids passed by Earth closely just yesterday and 2 more are expected to make close approaches with the planet today, with one of them being Asteroid 2022 SF.

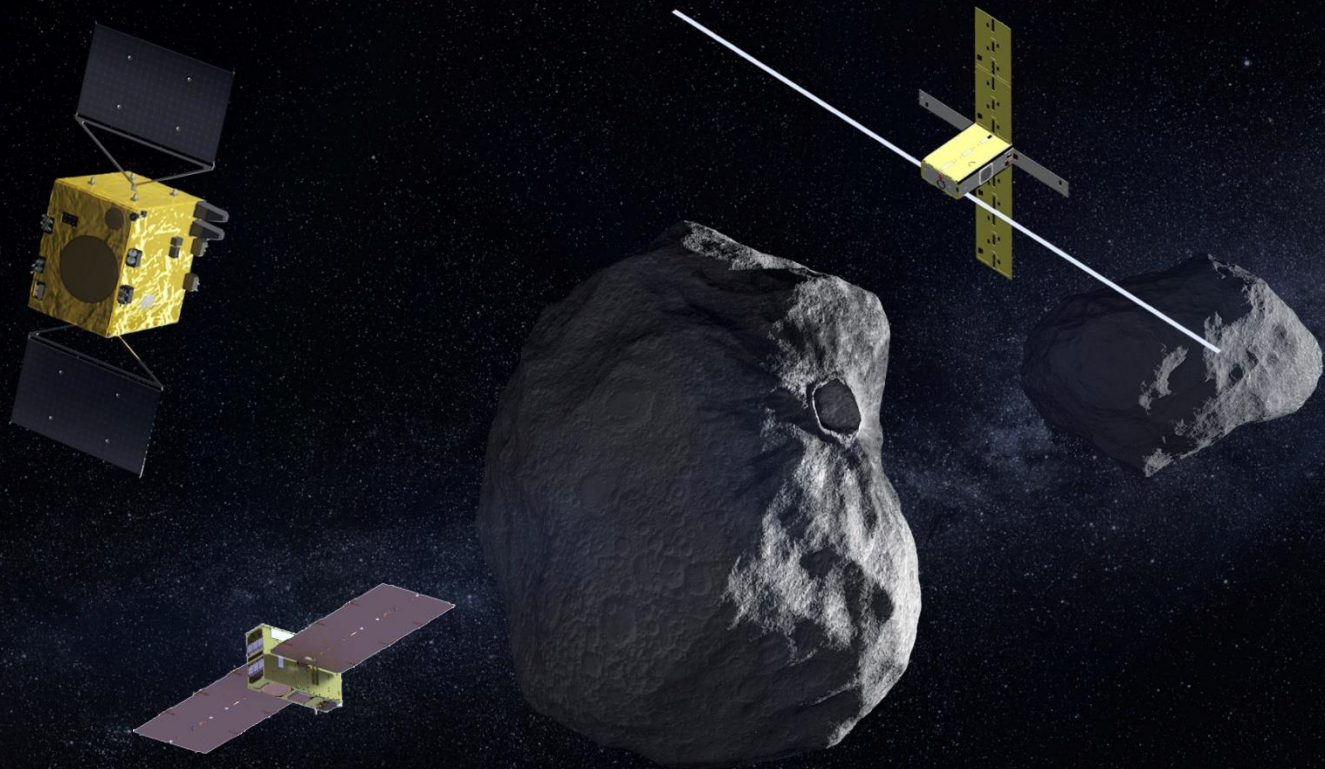
Dimorphos Detected Target Lock Precision Lock Final Comm Opportunity Stop Maneuvers IMPACT

NASA
LIVE

DART Impact Sep 26th

LIVE DART Cam

Hera

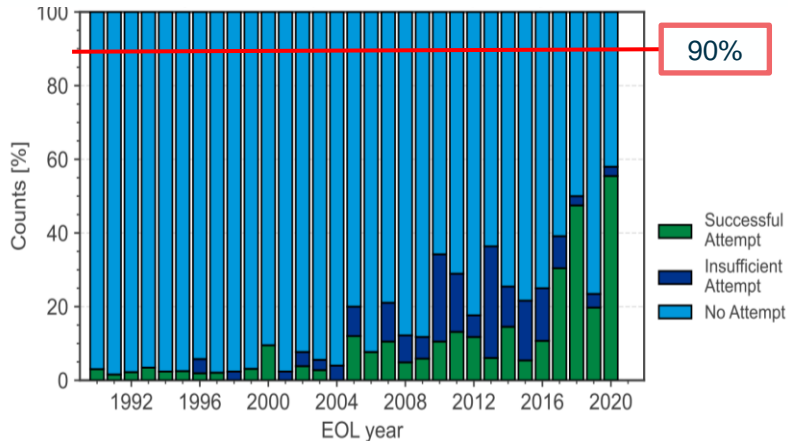


Launch, operations, cubesat MOC and Science



Successful disposal in LEO significantly below 90%

Payload Clearance in LEO (excluding natural compliance)



by 2030

Compliance with Post Mission Disposal much higher than 90%

Removal missions for remaining debris

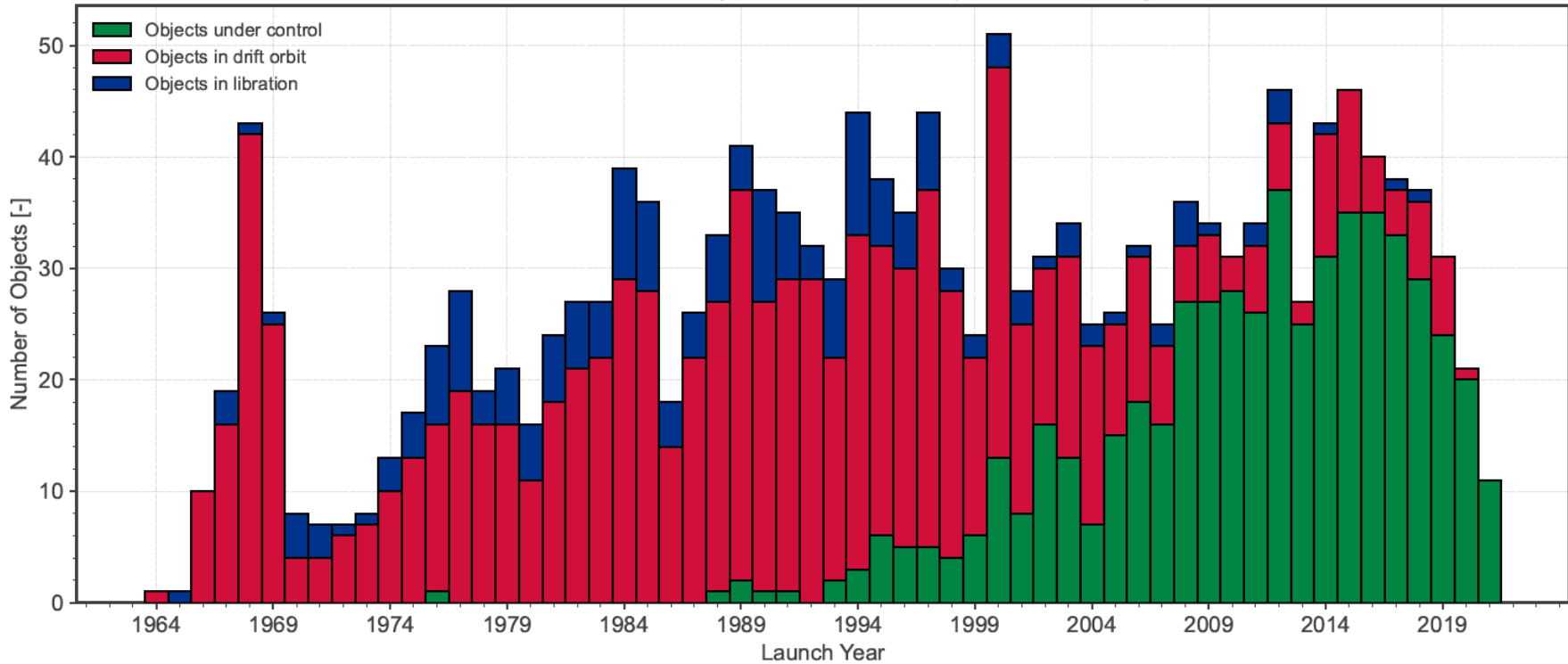
Zero Debris Approach



“The Zero Debris Approach is a key element of the European Space Agency’s strategy to ensure the long-term sustainability of space activities. It aims to prevent the accumulation of space debris and to ensure that the orbital environment remains safe and usable for future generations.”

In-Orbit Servicing Market

Classification of Objects near the Geosynchronous Ring





OBJECTIVES

1. To enable a **commercial** service involving a **service provider** and **customer**.
2. To **limit further losses** of **potential market share** for European IOS service providers.

- The Apophis mission, named "Satis", will be agile and cubesat-based
- re-use Hera/M-ARGO concepts for a rendezvous mission
- NASA expressed its interest
- Period 2: Phase A/B1



COSMIC: Aurora Mission

- Class 100 kg plus payload, robust, agile, reliable
- imaging data of day and night side of the Auroral Oval for geomagnetic storm forecasting (GNSS, communications, tourism...)
- Opportunities for European Micro-launchers
- Demo Mission in Period 2
- Constellation in following periods





- Use of nanosatellites for SWE monitoring for operational applications
- Following New Space approach, greater flexibility miniaturised instruments and dynamics, cost-effectiveness
- First mission(s) to be implemented in Period 2

- Pre-operational systems and services for providing timely and reliable SWE information to affected end users
- Unlocking European potential for providing space weather services and utilising data from European SWE sensors
- Hosted payloads



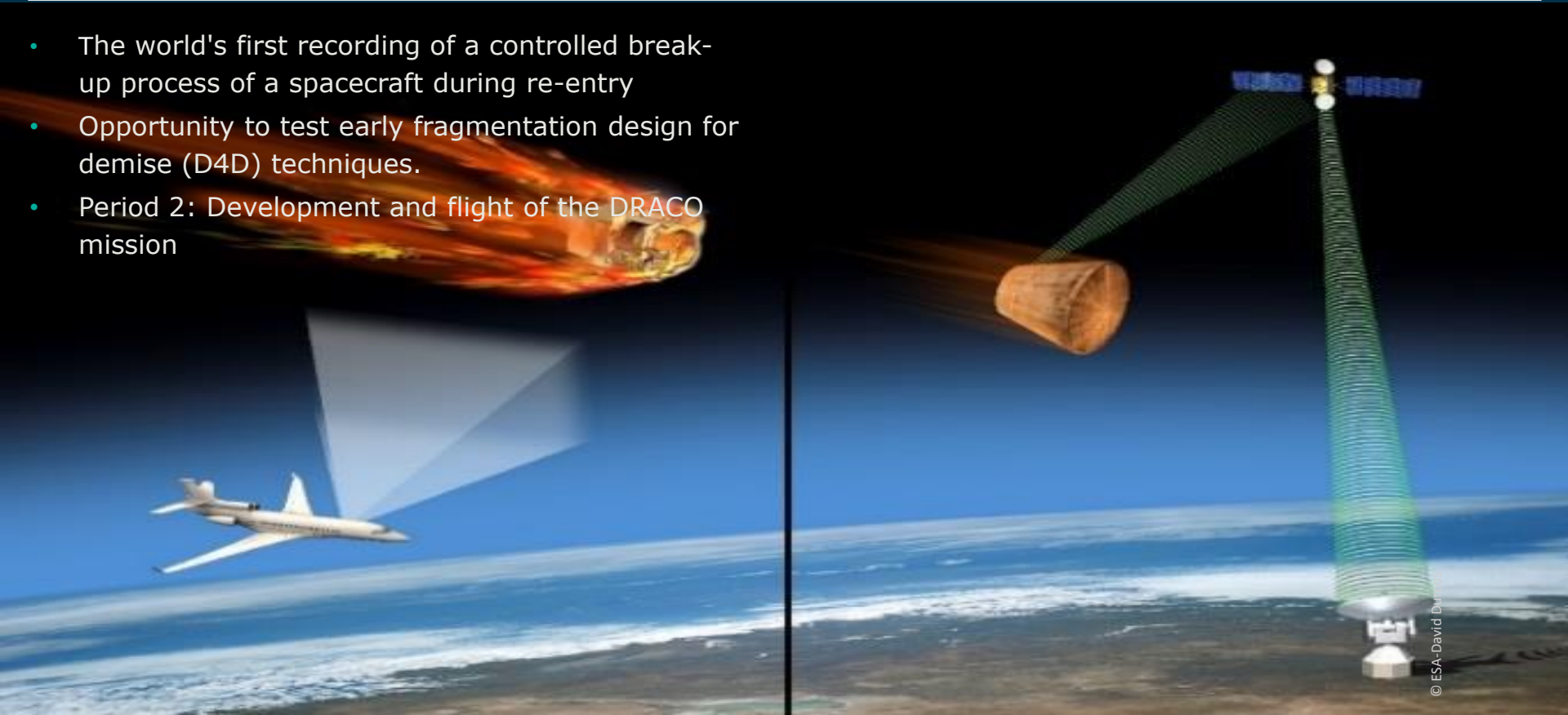
- Flyeye-2 telescope, featuring a fully revised design.



- Telescope Array, scalable architecture to perform surveys and follow-ups, open commercialisation options.

COSMIC DRACO (Destructive Re-entry Assessment Container Object)

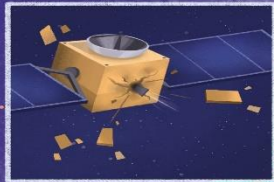
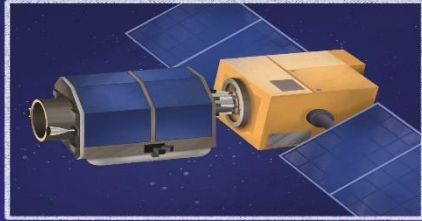
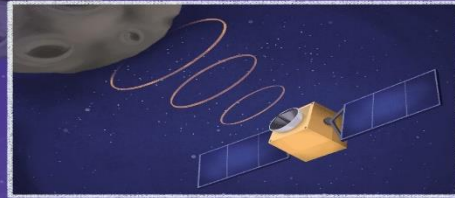
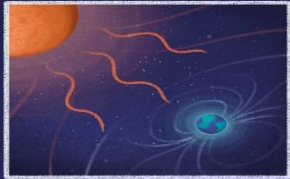
- The world's first recording of a controlled break-up process of a spacecraft during re-entry
- Opportunity to test early fragmentation design for demise (D4D) techniques.
- Period 2: Development and flight of the DRACO mission



© ESA-David D...



Competitiveness Segment



Development of a market for space safety products and services.

ESA will act as a trial user and early adopter of the industry's products/services to reduce business risks.

Thank You !



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