ZAITRA

We optimize space data delivery by providing on-board data processing products and services

Cost reduction
By not downloading unnecessary images

Saved bandwidth
For more useful data

High reusability
Most common sensors and DPUs supported
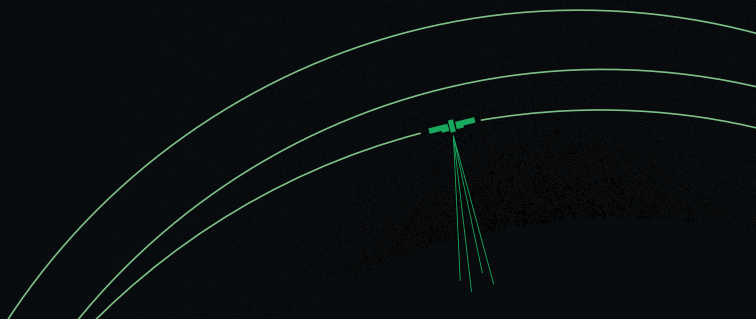
Rapid response
Faster access to critical data

Satellite autonomy
Autonomous on-board decisions

Return on investment
Mostly expected in months

Optimize downlink by minimizing unnecessary data transmission

With SKAISEN, you can effectively support your mission's goals while saving costs associated with data transfer and enhancing mission autonomy. SKAISEN is an on-board object detection solution designed for EO missions, compatible with a wide range of optical sensors. Powered by AI algorithms, SKAISEN detects pixels polluted by clouds or containing target objects directly on-board the spacecraft. This offers multiple benefits, such as reducing costs by avoiding the transmission of irrelevant pixels, conserving communication bandwidth for more valuable data, and enabling faster access to critical information through data prioritisation. SKAISEN is currently compatible with several sensors (multispectral/hyperspectral cameras) and supports deployment to on-board hardware units based on FPGAs, GPUs, and others.

ROI use cases: How SKAISEN works?

USE CASE 1: CLOUD DETECTION FOR OPTIMIZED DATA TRANSMISSION

SKAISEN estimates cloud coverage in satellite images and relays this information to the satellite operator or customer. Based on this data, the customer can make informed decisions and avoid downloading cloudy imagery.

WHO BENEFITS?

Missions with limited data download capabilities due to limited ground station access. These missions often need to prioritise critical data downloads during their communication windows.

End users who want to avoid downloading low-quality or irrelevant data. This data holds no value, cannot be sold, and is not of interest to potential customers.

USE CASE 2: REAL-TIME OBJECT DETECTION

The customer selects scientific, commercial, or defence-related objects of interest. SKAISEN automatically identifies those objects in real-time in orbit and provides the relevant information to the operator, enabling automated actions.

FLIGHT PROVEN

SKAISEN builds on the proven data processing capabilities first demonstrated on the VZLUSAT-2 CubeSat mission. All SKAISEN features are demonstrated on the TROLL mission, scheduled for launch in Q1 2025, incorporating a hyperspectral camera and DPU payload provided by Zaitra. Additionally, there are upcoming missions for 2024 and 2025 with undisclosed customers that will utilise SKAISEN technology on-board.

SKAISEN is available in multiple configurations. To ensure transparent pricing, we offer two types of licences:

SKAISEN SPACECRAFT LICENSING

This licence is linked to specific satellites or projects and is suitable for Data Providers, Mission Owners, System Integrators, and Satellite Manufacturers. All new licences come with a progressive discount based on the total number of SKAISEN licences already obtained.

SKAISEN INSTRUMENT LICENSING

This licence is associated with specific payloads, such as EO cameras or computation boards, and permits their implementation on identical devices as an integrated component of the product. This option is ideal for Payload Developers with an option to resell SKAISEN as a default part of their product offering.

EXAMPLES OF RETURN OF INVESTMENT CALCULATOR:

Parameters	Case study 1
GSD Resolution (m)	5
Data volume captured (GB per day)	232
Estimated communication time (minutes per day)	48
Ground station pricing (€ per minute)	10
Avarage useful data rate (Mbps)	4.3
SKAISEN data filtered (between 30-90%)	70%

Parameters	Case study 2
GSD Resolution (m)	5
Data volume captured (GB per day)	477
Estimated communication time (minutes per day)	160
Ground station pricing (€ per minute)	4
Avarage useful data rate (Mbps)	15
SKAISEN data filtered (between 30-90%)	70%

SKAISEN ROI: Case Study 1

— Price for data downlink **with lifetime** SKAISEN Edge licence
— Price for data downlink **without lifetime** SKAISEN Edge licence
— Price for data downlink **with annual** SKAISEN Edge licence

SKAISEN ROI: Case Study 2

— Price for data downlink **with lifetime** SKAISEN Edge licence
— Price for data downlink **without lifetime** SKAISEN Edge licence
— Price for data downlink **with annual** SKAISEN Edge licence

KEY BENEFITS:

Reduction of downlink-related costs
Save your costs by not downloading data acquisitions polluted by clouds, noise or unnecessary objects.

Saving communication bandwidth for more useful data
Filtering out unnecessary images saves bandwidth for more urgent data with higher information value and increases near-real-time access to critical information.

No data are changed or discarded without consent
All the data from the sensor is safe. SKAISEN generates only metadata for an operator and will not delete any existing data without the operator's consent.

Highly reusable for any optical EO mission
Seamlessly supports a range of commonly used sensors and data processing units. It has been tested with Simera Sense cameras and boards equipped with Xilinx® Zynq™ SoC. We are working on supporting additional sensors and data processing units.

Faster access to critical data
Prioritise which data needs to be downloaded first.
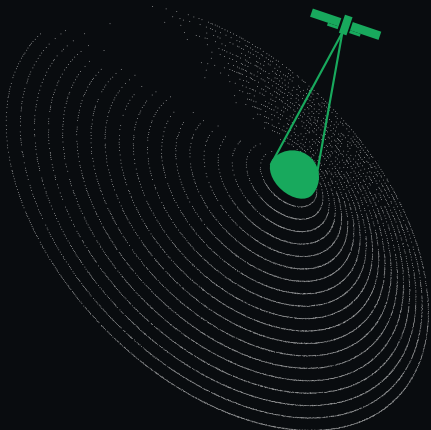
Enhancing mission autonomy
SKAISEN enables data-driven on-board decision-making, which can be automated.

Return on investment guaranteed
Experience the full potential of SKAISEN with personalised Return on Investment calculations tailored to specific mission and needs.
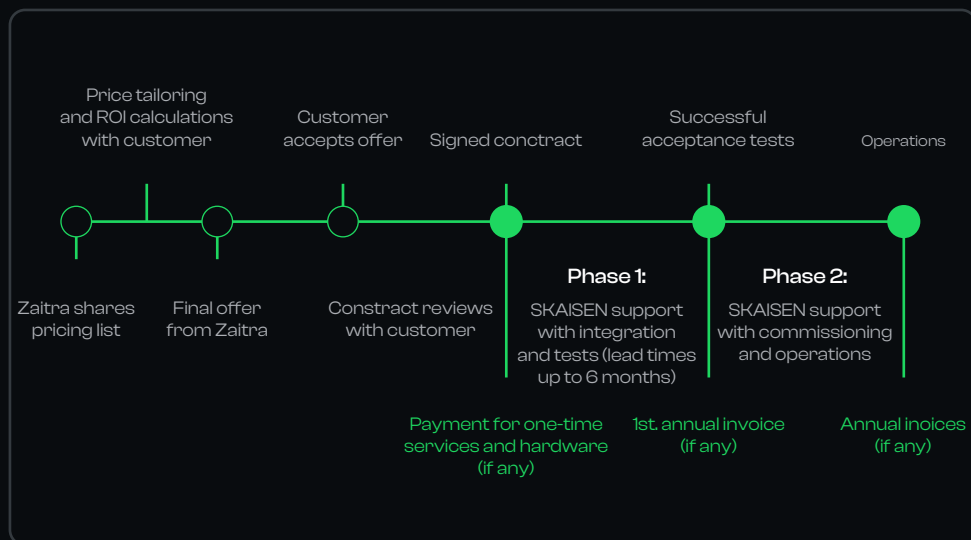
Update anytime in-orbit
If a new or updated solution becomes available, we can upload it directly to the spacecraft or satellite together with the mission operator.

Contact us, our team will be happy to calculate it exactly.

After contacting our team

Price tailoring and ROI calculations with customer

Customer accepts offer

Signed conctract

Successful acceptance tests

Operations

Zaitra shares pricing list

Final offer from Zaitra

Constract reviews with customer

Phase 1:
SKAISEN support with integration and tests (lead times up to 6 months)

Phase 2:
SKAISEN support with commissioning and operations

Payment for one-time services and hardware (if any)

1st. annual invoice (if any)

Annual inoices (if any)

Ready to choose the suitable license for your needs?

Contact us now at <u>sales@zaitra.io</u>, and our team will gladly assist you.

ZⴰITRA

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