



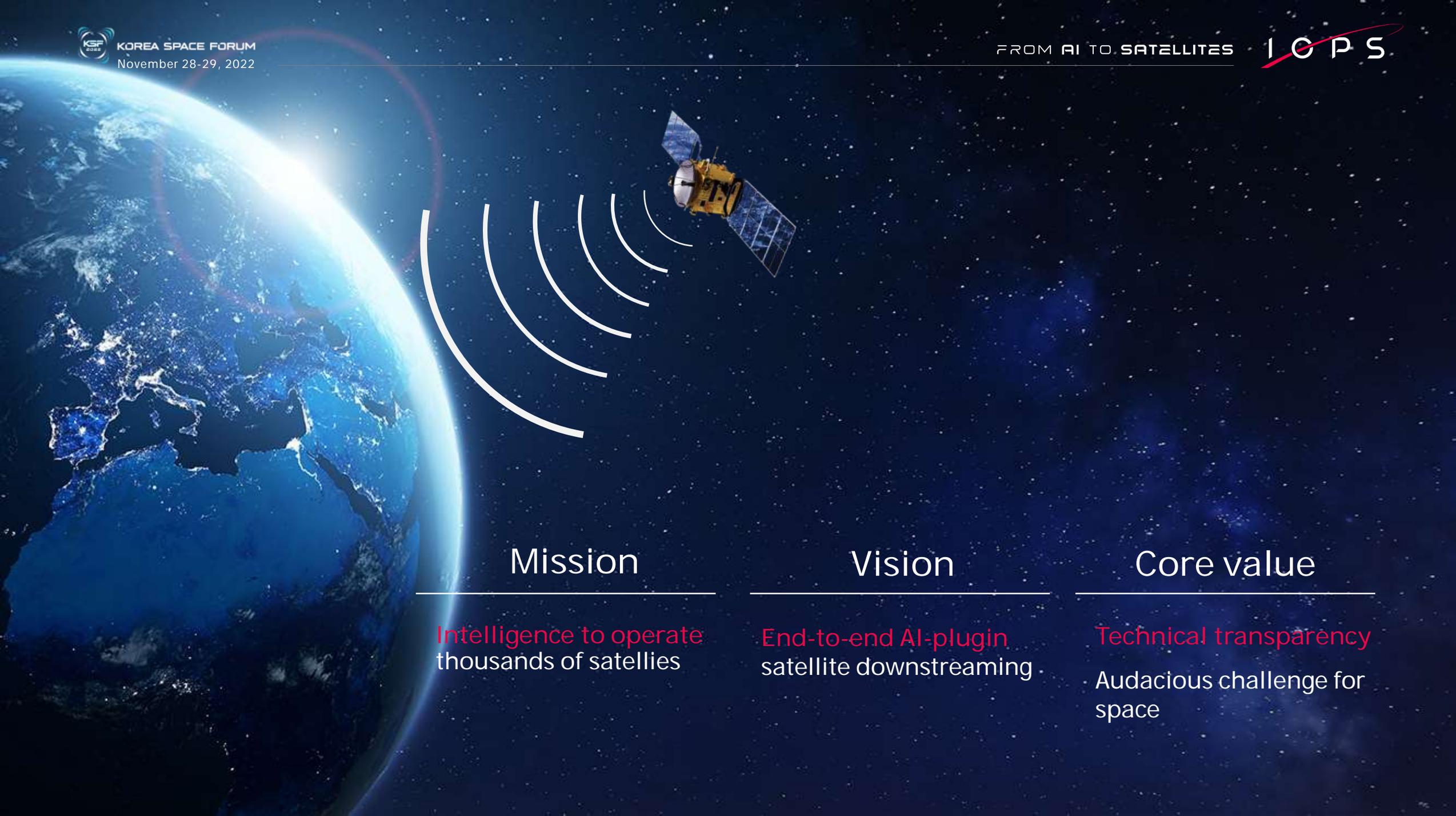
AI-BASED SATELLITE DOWNSTREAM SOLUTION

ABOUT US

A **spin-off company from KARI**
(Korea Aerospace Research Institute)

We build **AI-plugin downstream systems** for satellite constellation





Mission

Intelligence to operate
thousands of satellites

Vision

End-to-end AI-plugin
satellite downstreaming

Core value

Technical transparency
Audacious challenge for
space

THREE REASONS WHY IOPS IS SPECIAL

First and unique
company for high-tech
government satellite
operation in Korea

11

- We have operated eleven government satellites
- since 2005.

Satellite operation
software development
based on our on-site
satellite operation

10

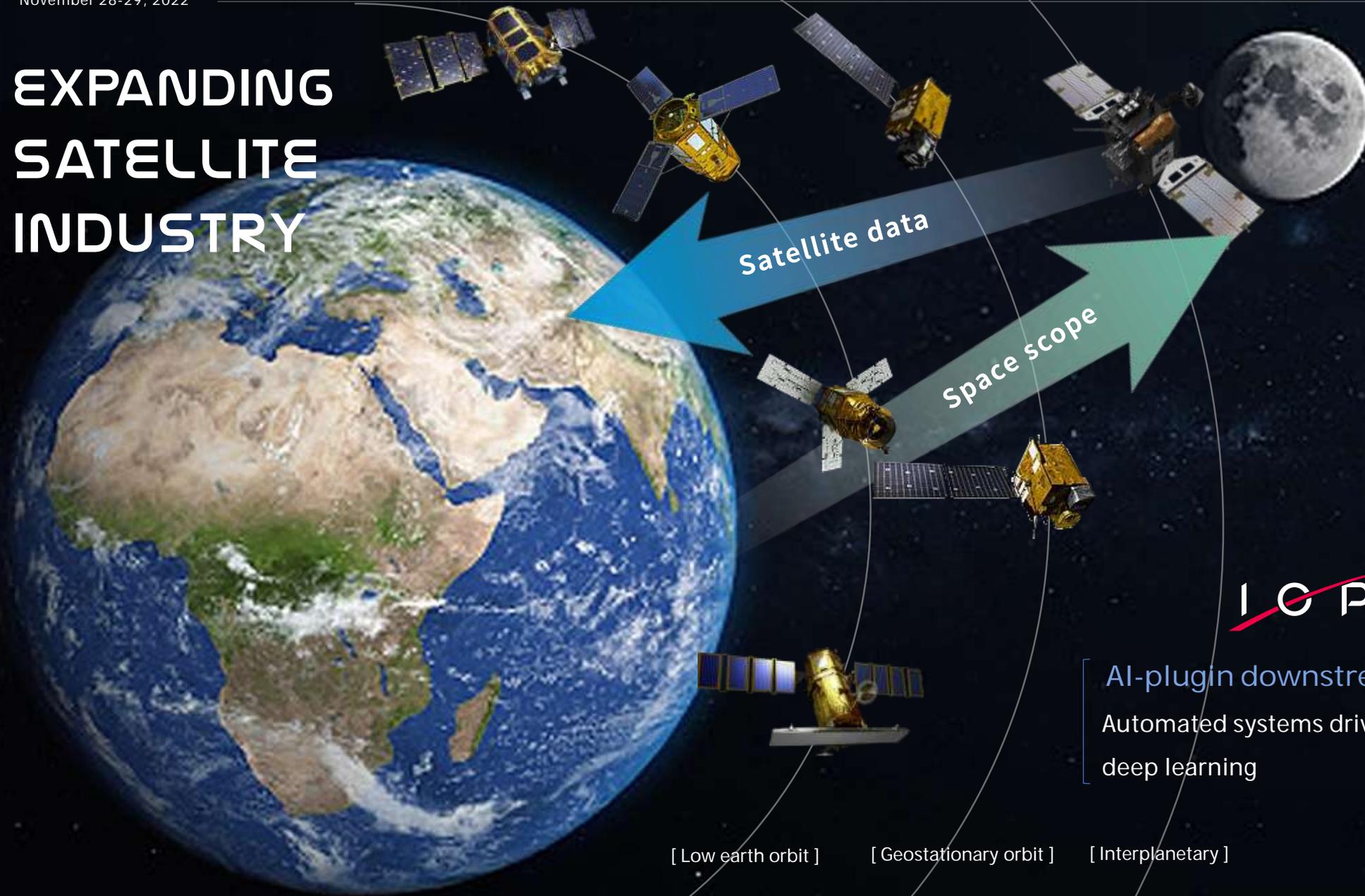
- We have developed 10 satellite operation software and systems.

Research engineers
focusing on AI based
satellite downstream
technology

**DOWNSTREAM
TALENTS**

- Our team is consisted of experts on satellite downstream technology from operation to AI.

EXPANDING SATELLITE INDUSTRY



[Low earth orbit]

[Geostationary orbit]

[Interplanetary]

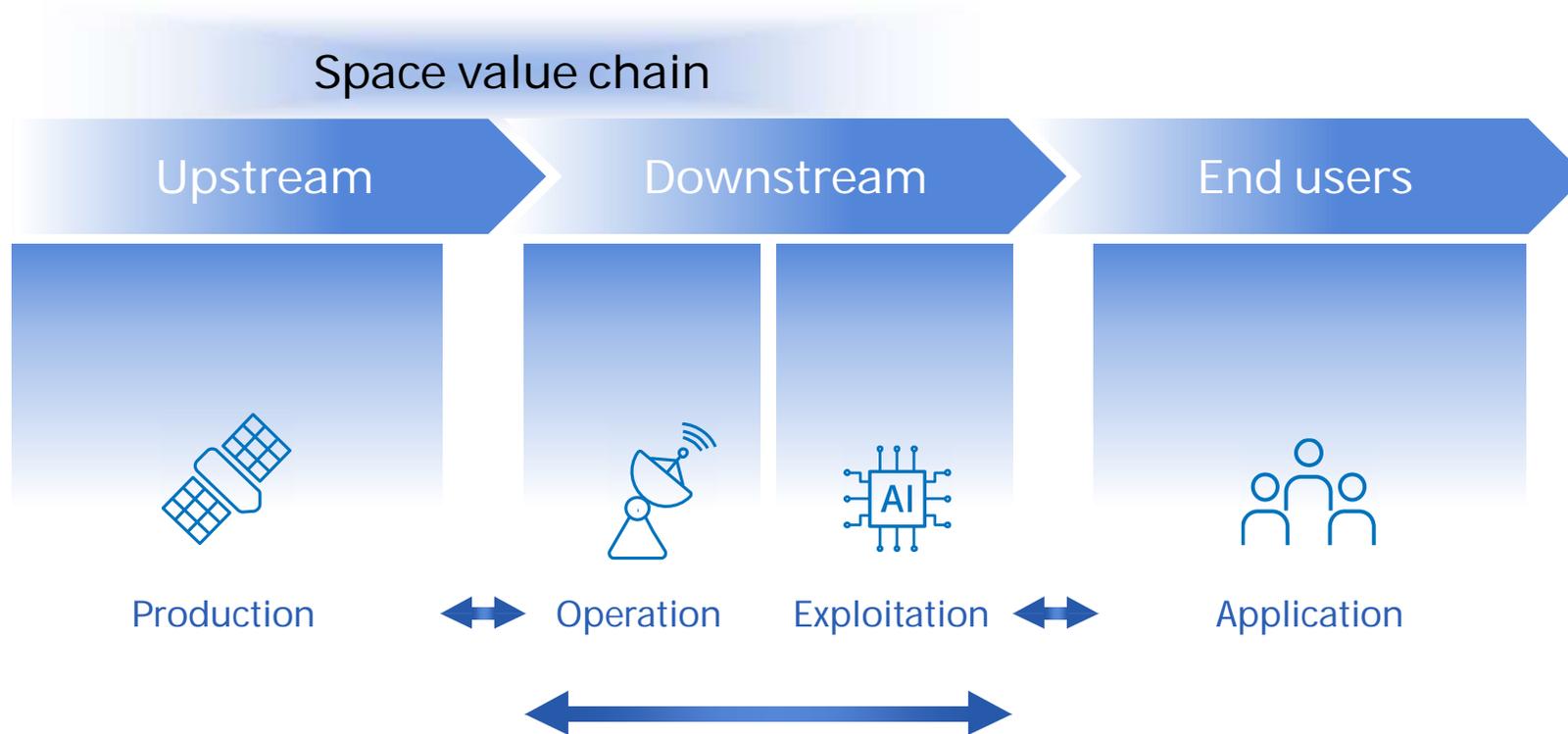
IOPS

AI-plugin downstream technology
Automated systems driven by trustworthy
deep learning

PROBLEM 1

MARKET GAP

Needs eligible downstream sectors between upstream and end-users.



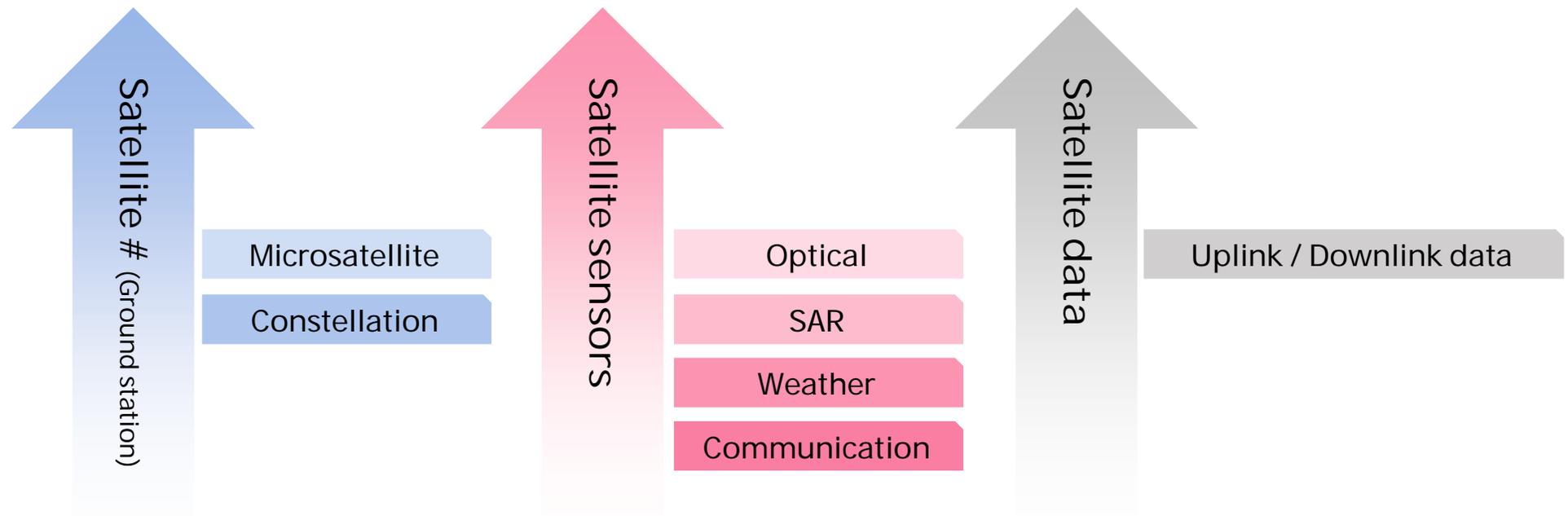
How to solve this broken gap?

PROBLEM 2

Increasing satellites

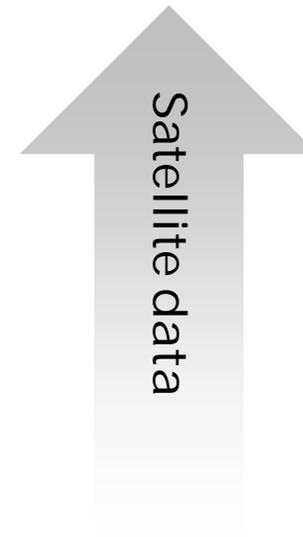
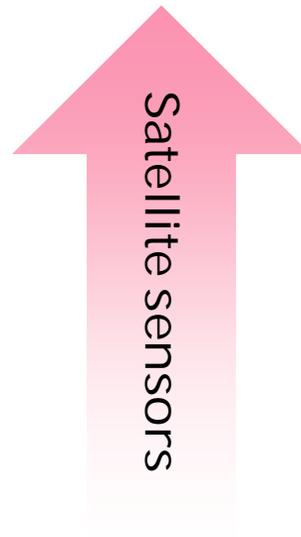
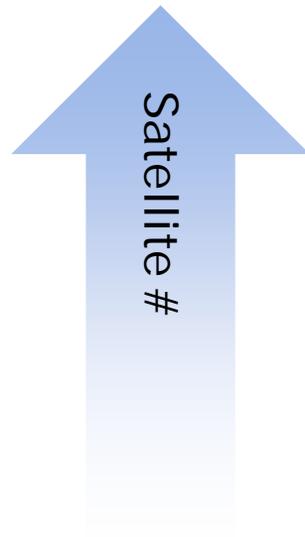
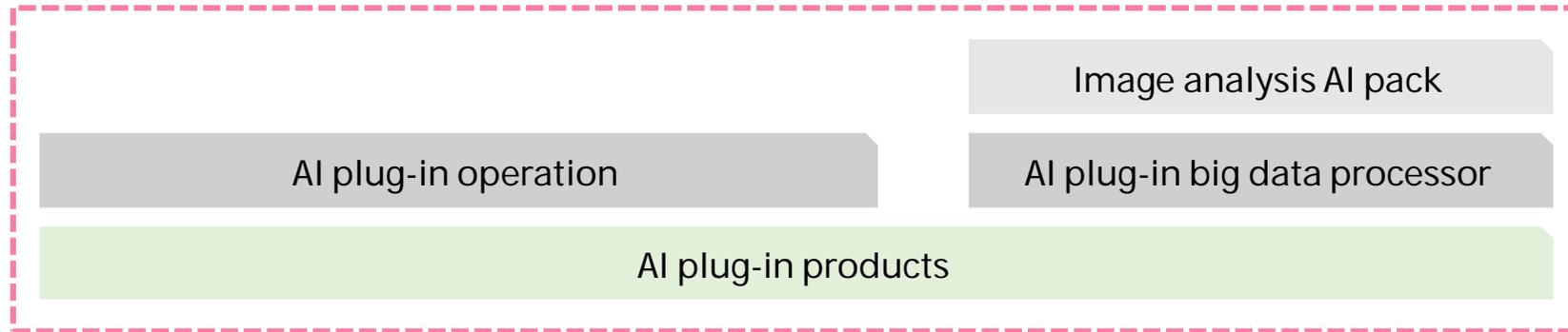
Needs to cope with growing satellite demands in NewSpace.

How to solve these in terms of AI?



SOLUTION

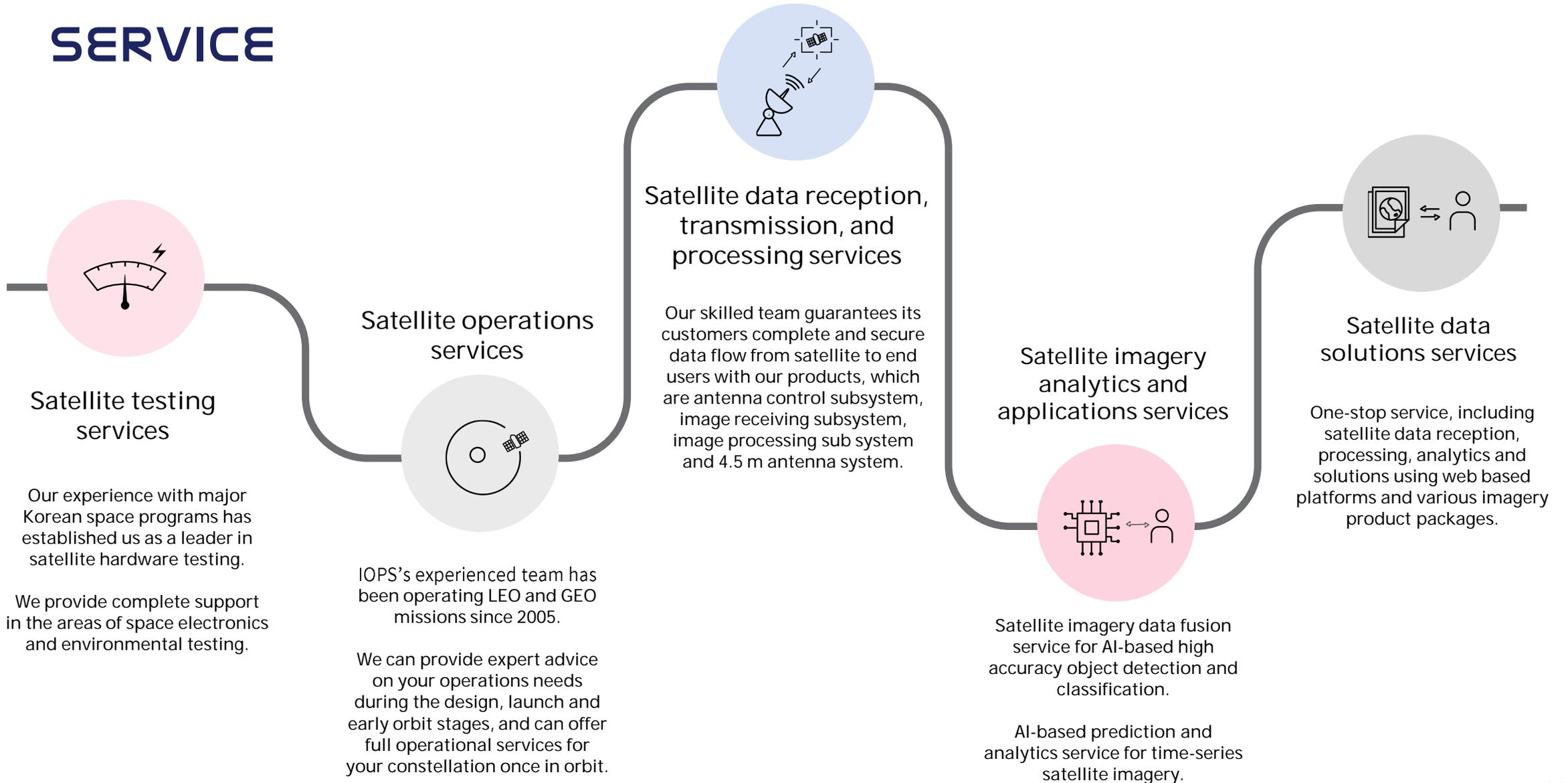
AI-plugin downstream technology



SERVICE, PRODUCT AND BUSINESS MODEL

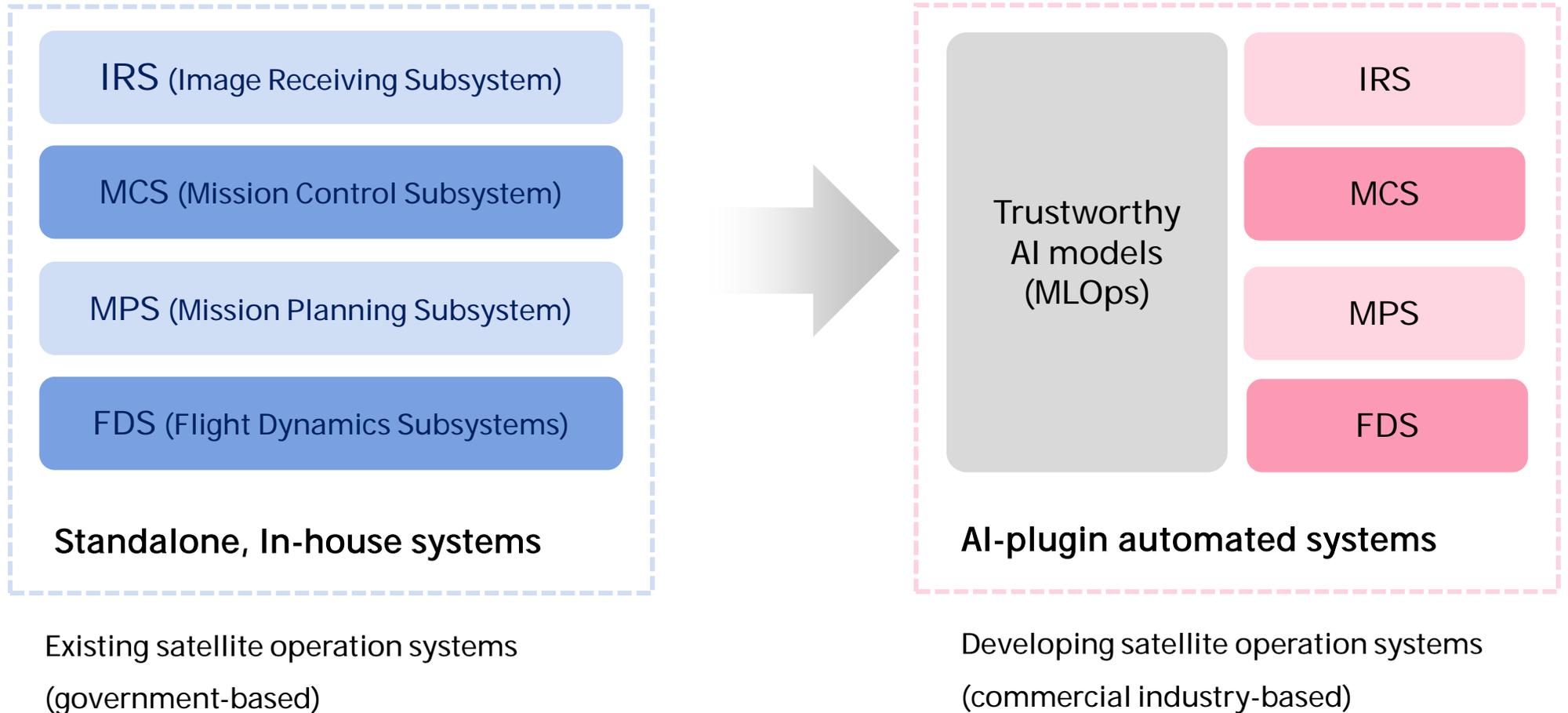


SERVICE



PRODUCTS

SATOPS



PRODUCTS

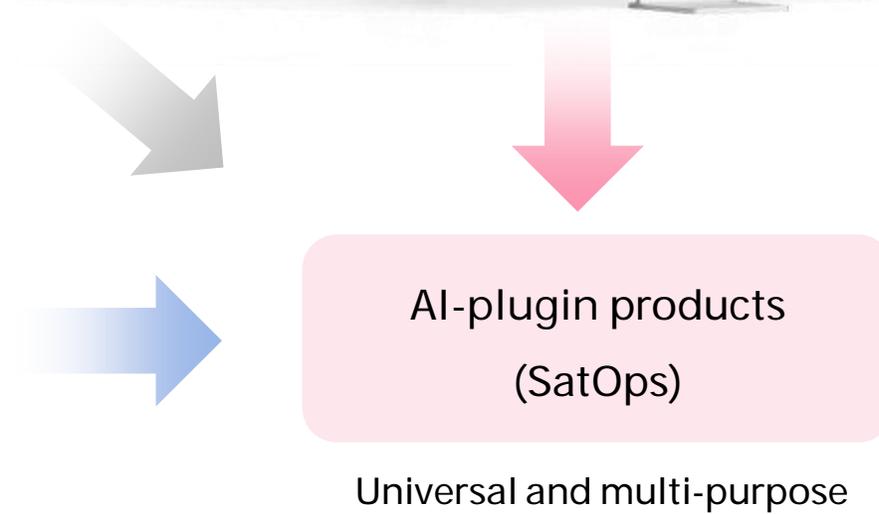
MCS (Mission Control Subsystem)



MPS (Mission Planning Subsystem)



FDS (Flight Dynamics Subsystem)



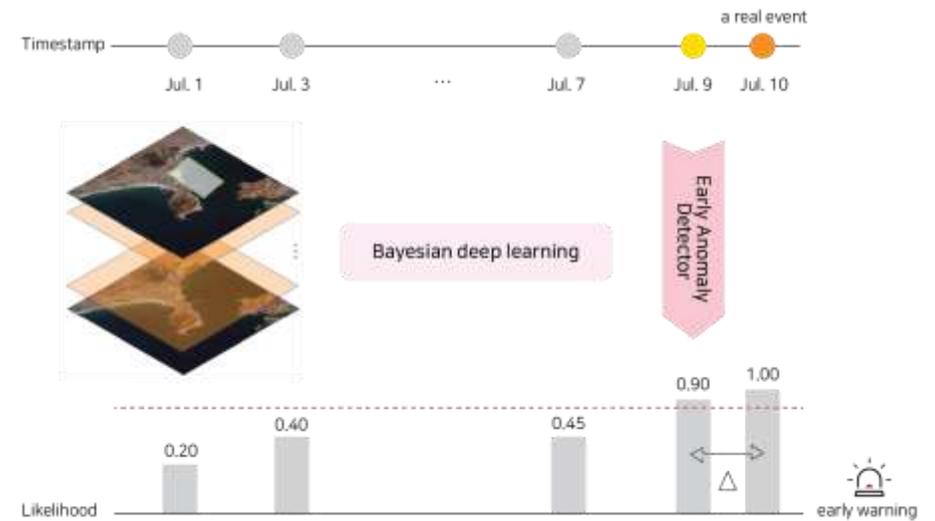
PRODUCTS

SATAPP

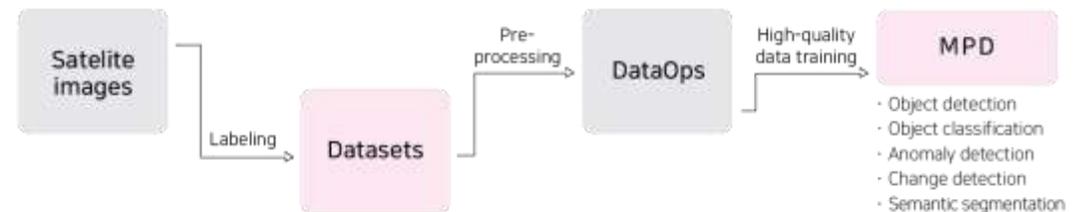
SDF (Satellite Data Fusion)



EAD (Early Anomaly Detector)

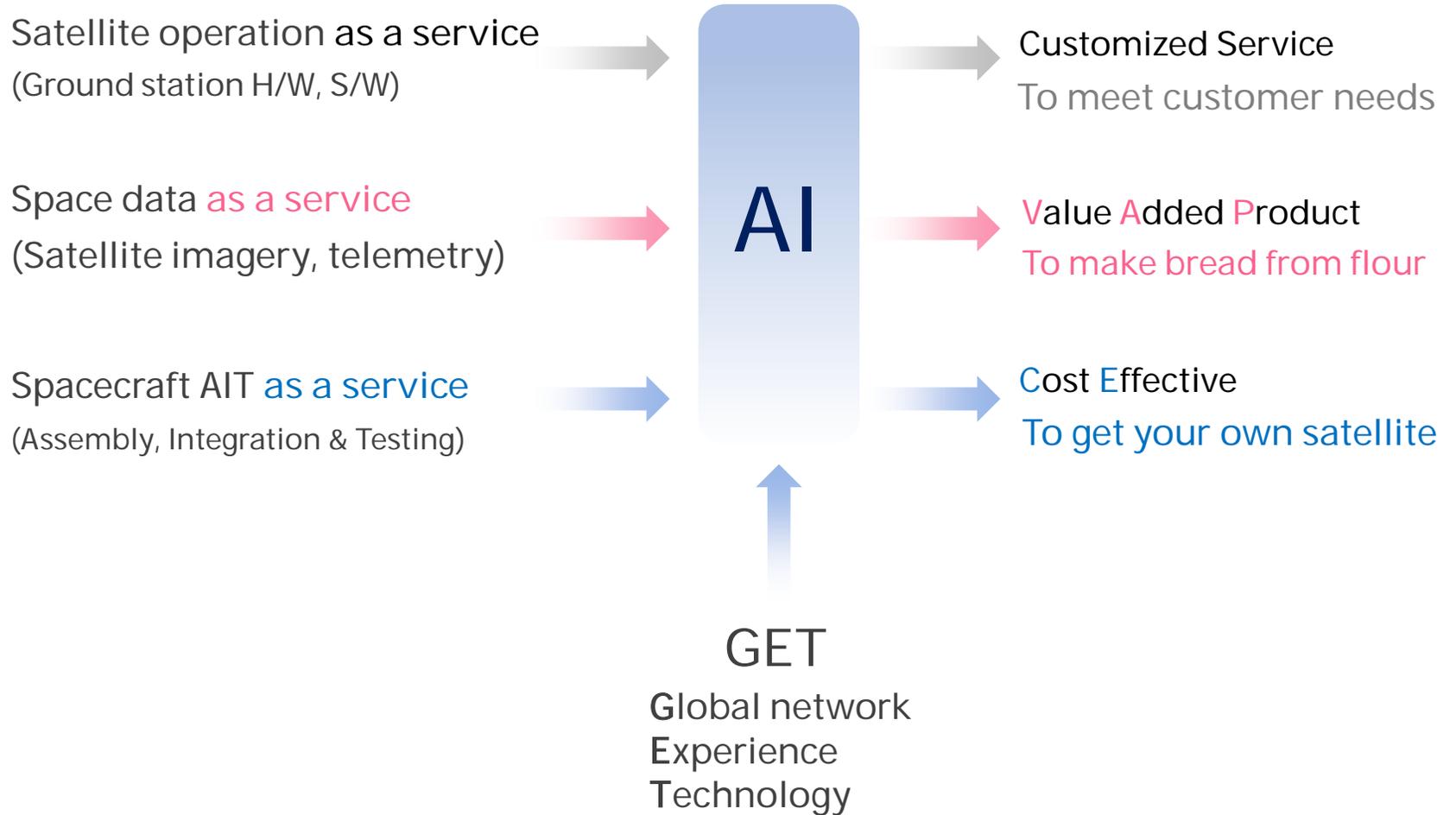


MPD (Multi-Purpose Detector)



BUSINESS MODEL

Space systems & data as a Service



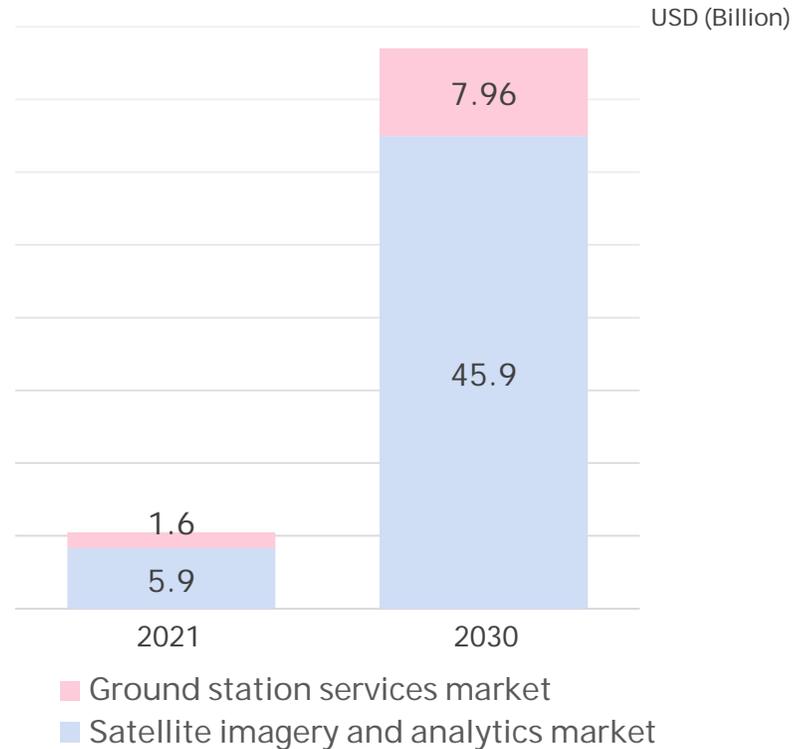
MARKET AND FINANCE



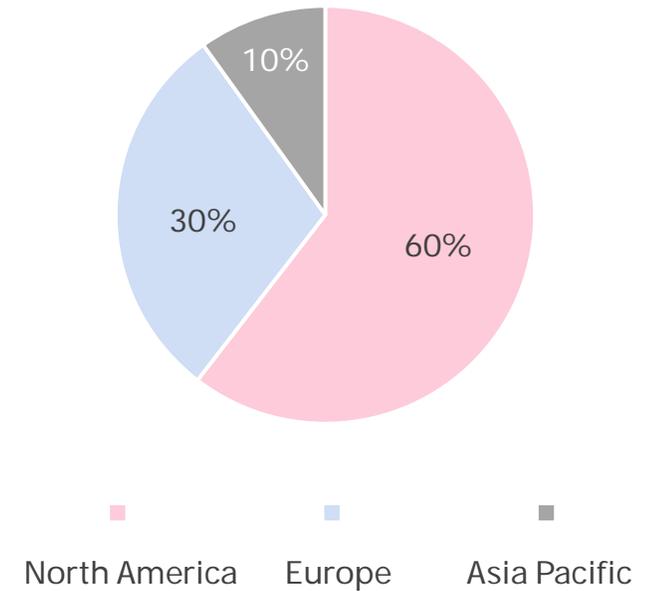
MARKET POTENTIAL 1

Global Satellite data and ground services market

More satellite launches are to come!



Markets and markets, 1Nov
2022, <https://www.marketsandmarkets.com/>

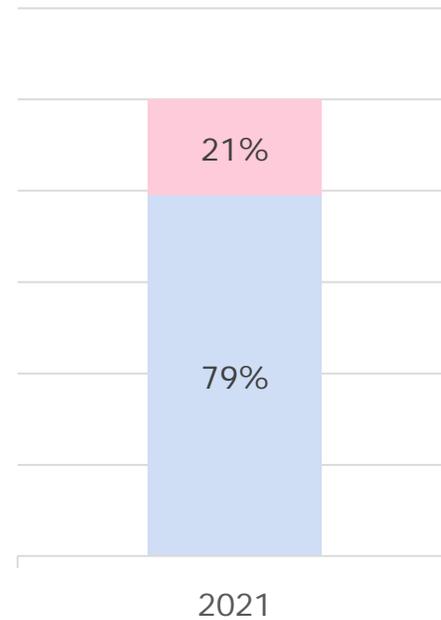


by region

MARKET POTENTIAL 2

Global Satellite data and ground services market

Satellite data analytics service (VAP)



- Satellite imagery
- Satellite data analytics service (VAP)

Markets and markets, 1 Nov 2022, <https://www.marketsandmarkets.com/>

☆ Comparison ☆



Flour

VS

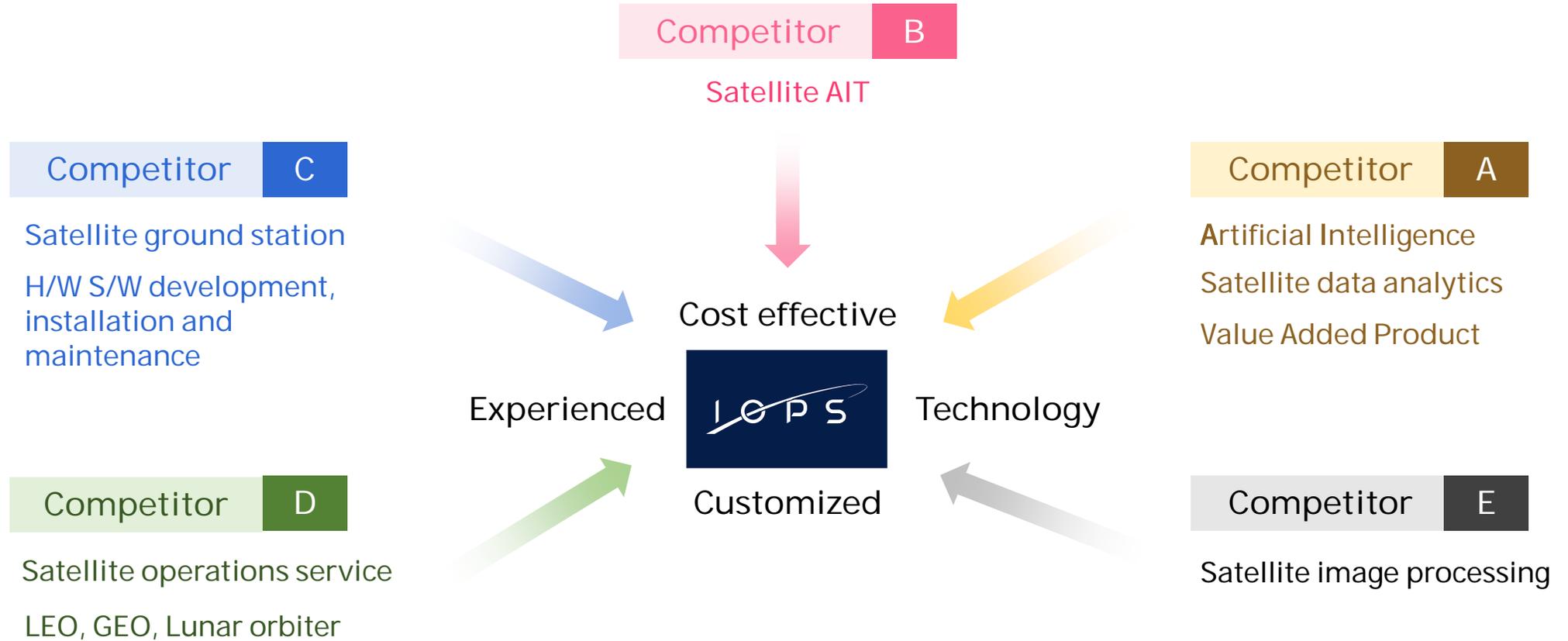


Bread

by service

MARKET POTENTIAL 3

Competitiveness



IOPS CLIENTS AND PARTNERS

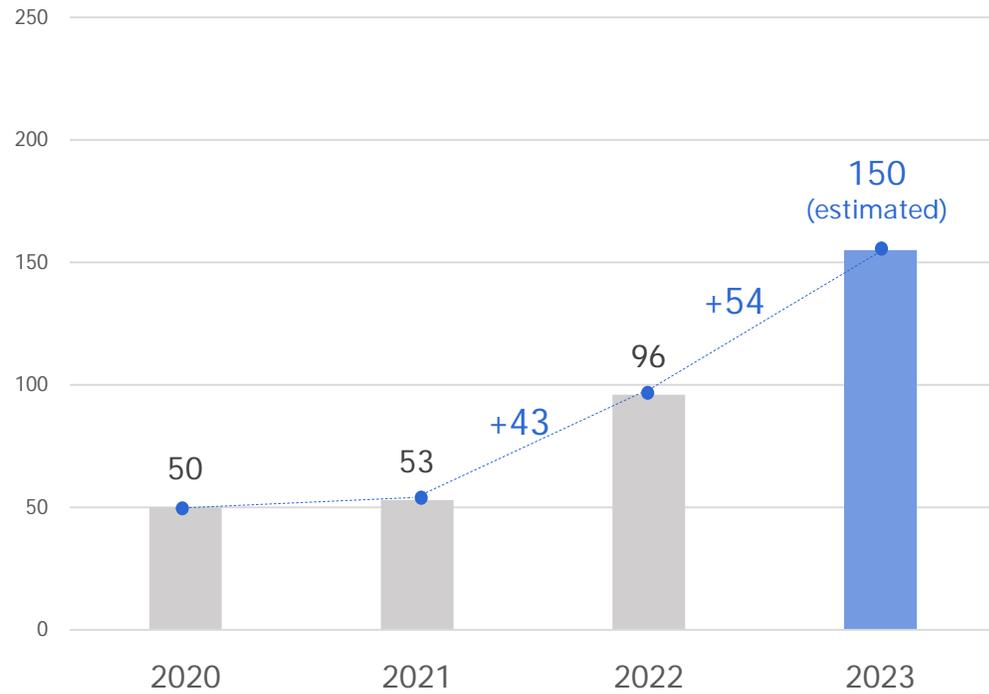
Customers and Partners



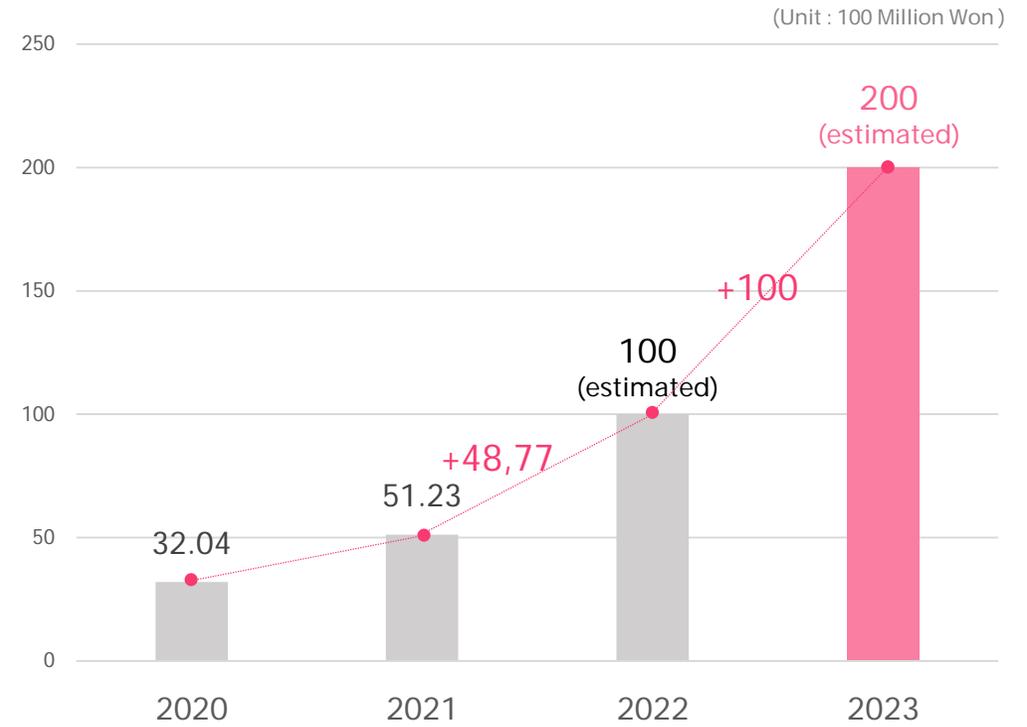
MOU



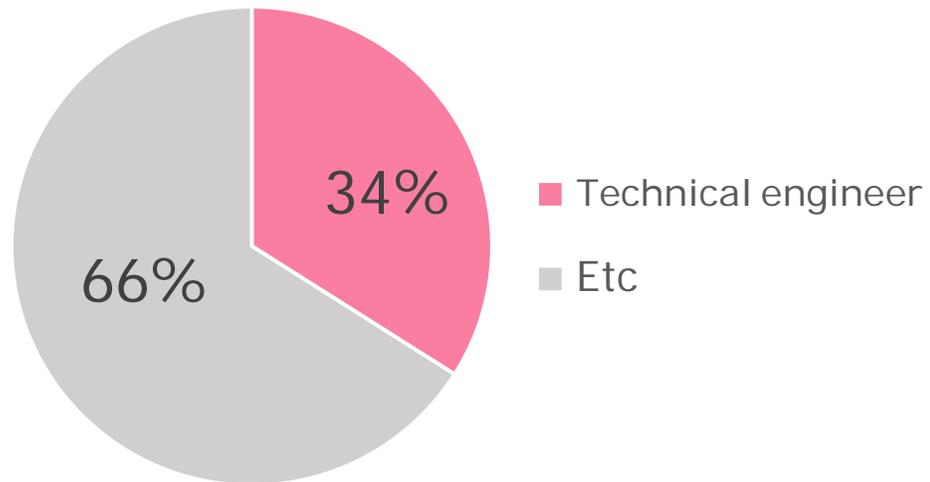
Total number of employees



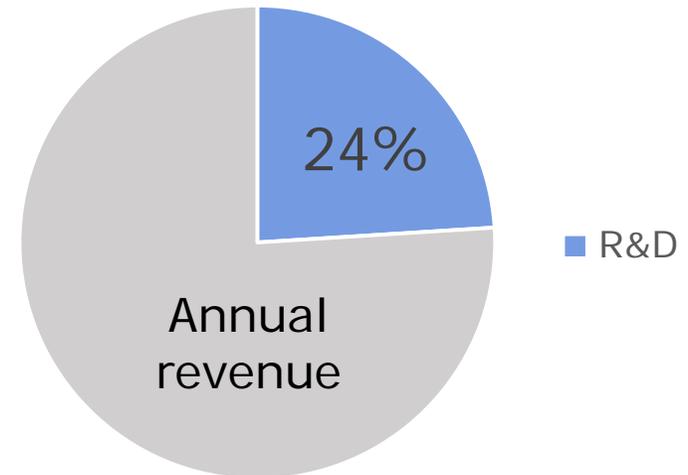
Annual revenue



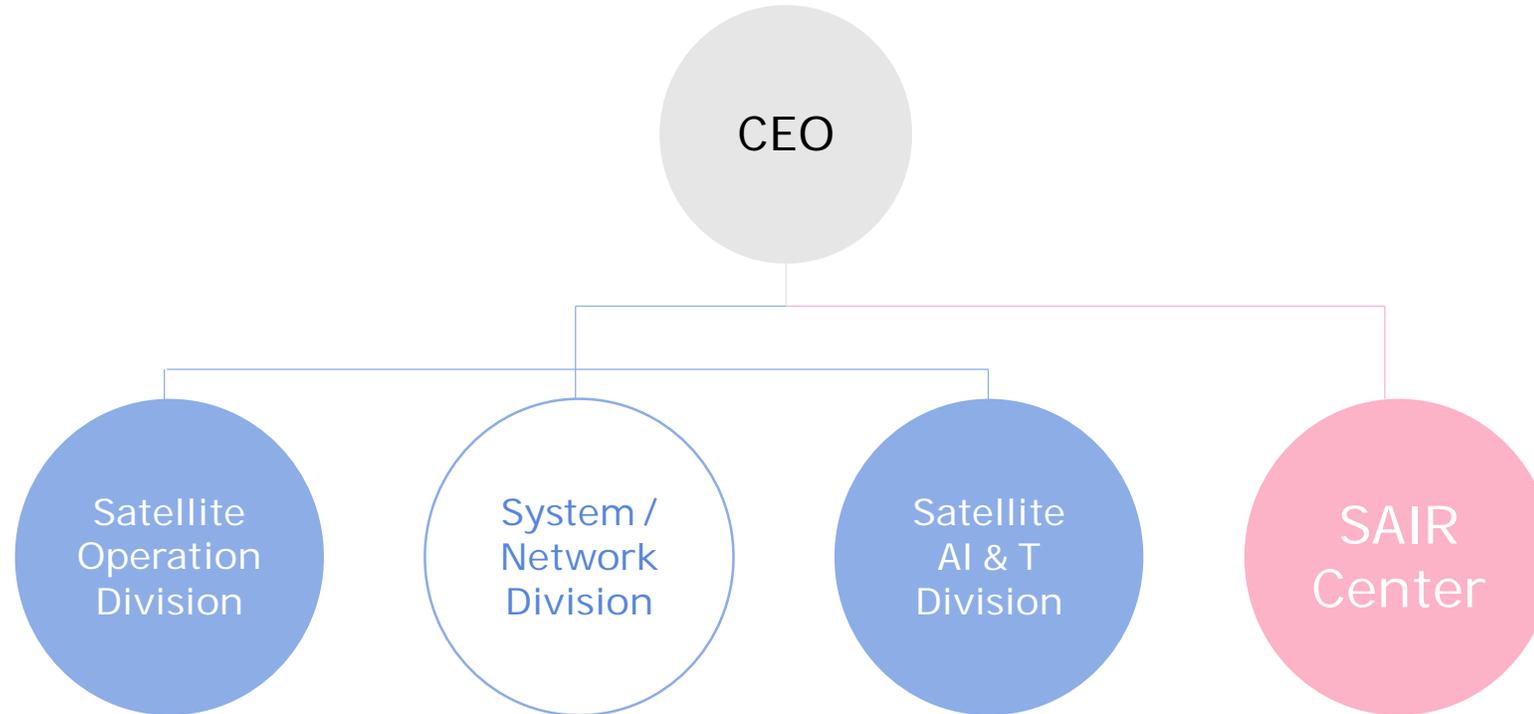
Technical engineer to entire employee ratio



R&D to Annual revenue ratio



ORGANIZATION AL CHART



No. of employees in Nov. 2022

Satellite AI&T	System/Network	Satellite Operation	SAIR	Total
13	10	57	16	96

CEO

YOUNGWOOK KIM



MAJOR

CAREER

- 2006 ~ 2019 • Senior researcher at KARI
- 2019 ~
 - CEO of WaveOn
 - Research Fellow, ITU-R SG4
 - CEO of IOPS
 - Cooperative director of the Korean Society for Space Science
 - Member of the KARI consultative group

RESEARCH FIELD

- Satellite control technology
- Satellite network propagation interference mitigation and sharing method

AWARDS

- The 4th Industrial Revolution Leading Company [Awarded from the Ministry of Trade, Industry and Energy]
- Frequency Research [Awarded from the Minister of Science and ICT]
- Satellite control [Awarded from the Minister of Science, ICT and Future Planning]

ABOUT THE BOARD OF DIRECTOR

CTO

- KAIST, Master of Physics

MAJOR CAREER

- IOPS (Technical Director/CTO)
- SIA (Director of Artificial Intelligence Research Center)
- Satrec Initiative (Senior Researcher)

RESEARCH FIELD

- Data analysis based on satellite aerial imagery and deep learning
- Developing explainable AI-based interactive satellite image analysis and deep learning acceleration technology
- Performed satellite image labeling projects for super-resolution and object identification

JEONGYEOL CHOE



HWANJONG CHU

CSO

- University of Surrey, MSc. Satellite Communications Engineering

MAJOR CAREER

- IOPS (Strategy Director/CSO)
- SIIS (Overseas Business Development Team Leader)
- KARI(Satellite Operations researcher)

PERFORMANCE

- Arirang satellite North American market pioneering and export
- Achieved USD 7 million in exports
- Exported Arirang satellite ground station to the National Space Administration of India



HONGSU CHU

CFO

- Chungnam National University, Astronomy & Space science

MAJOR CAREER

- IOPS (Financial director/CFO)
- KARI (Satellite Operations Researcher)

WORK FIELD

- IOPS Human Resources, Finance, Business Management
- Establishment of a mission plan for the GEO-KOMPSAT

PRESS(2022)



▶ Agreement for research and development of up-to date AI based on satellite SAR data - KAIST & IOPS

생활경제 < 라이프 > 기사분문 -IT비즈니스(ITBizNews)



▶ Agreement to nurture engineers/technician in the aerospace industry - Jeju National University & IOPS
산업통상자원부 보도자료



▶ The 4th Industrial Revolution Leading Company - [Awarded from the Ministry of Trade, Industry and Energy]
뉴스제주 (newsjeju.net)



KOREA SPACE FORUM
November 28-29, 2022



FROM AI
TO SATELLITES

THANK YOU

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