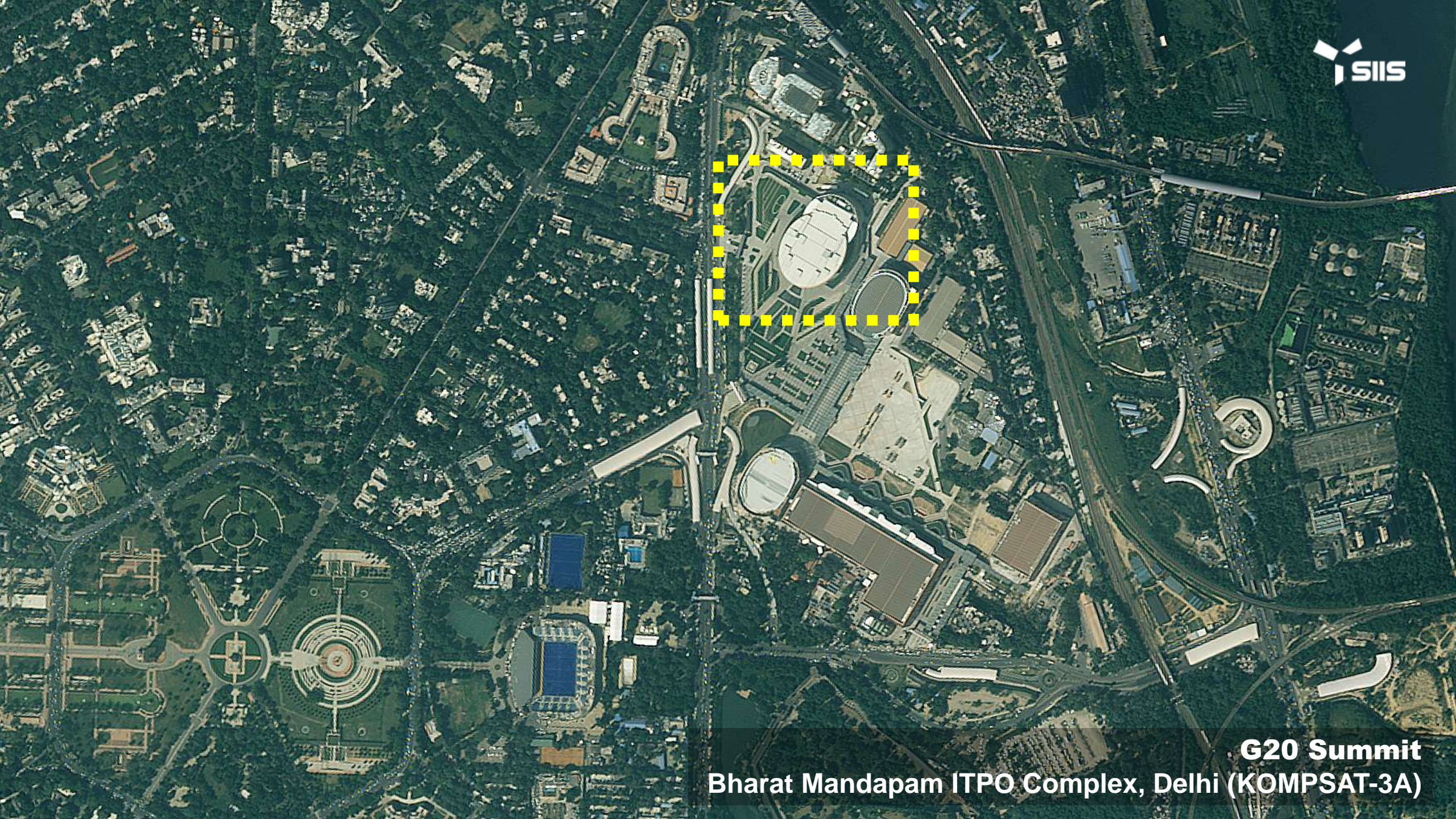




How to use **KOMPSAT** **for** **National Digital Twin**

SI IMAGING SERVICES

Minjun Kim – Global Sales Manager

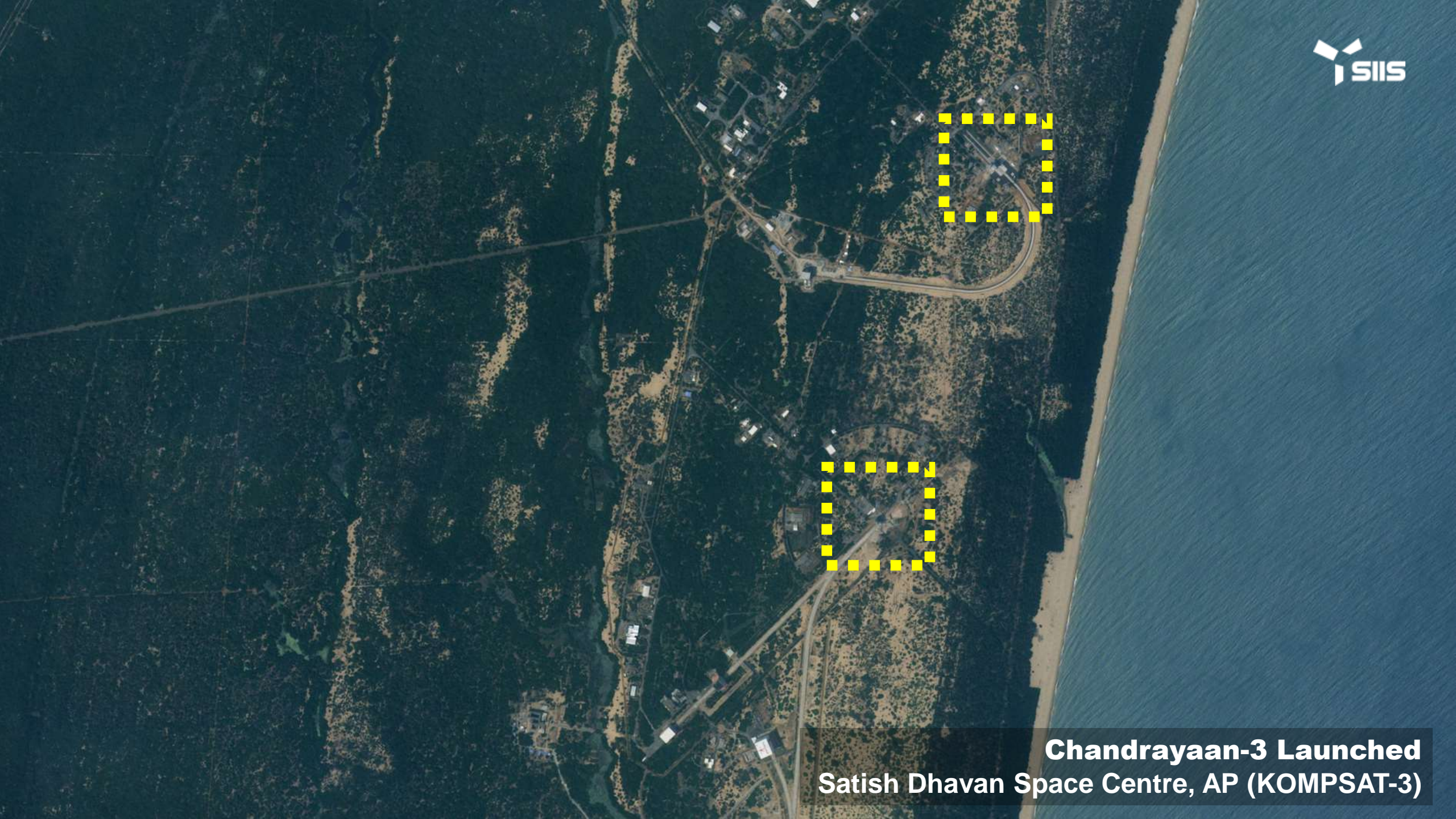


G20 Summit
Bharat Mandapam ITPO Complex, Delhi (KOMPSAT-3A)

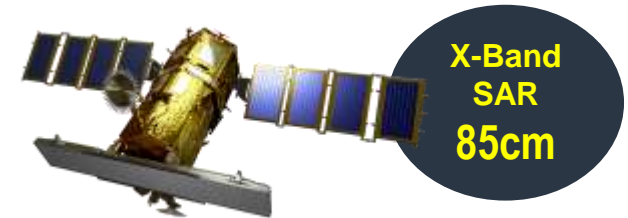
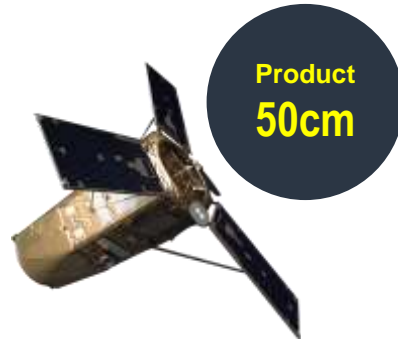
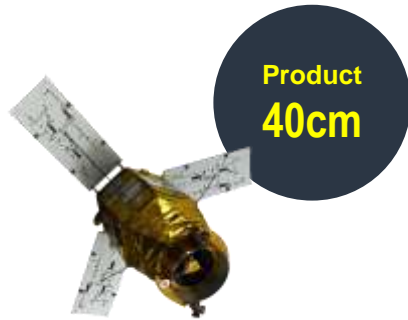


ICC Men's Cricket World Cup
M. A. Chidambaram Stadium, Tamil Nadu (KOMPSAT-3A)

**Chandrayaan-3 Launched
Satish Dhavan Space Centre, AP (KOMPSAT-3)**



KOMPSAT Constellation



Optical	KOMPSAT-3A	KOMPSAT-3
Resolution (Sensor GSD)	1PAN+4MS(R/G/B/NIR)	
	PAN 0.55m MS:2.2m	PAN 0.7m MS:2.8m
Swath	13km	16km
Imaging Time	13:00	
Revisit Time (ONA 30 deg.)	3 to 4 days → 1 to 2 days (Improved when Combined)	
Collection Capacity (per day)	Up to 277,992 km ²	Up to 325,440 km ²

SAR	KOMPSAT-5			
Mode	UH	EH/HR	ES/ST	EW/WS
Resolution Achievable	0.85m	1.0m	2.5m	20m (4 look)
Scene Size	5km x 5km		30km x 30km	100km x 100km
Imaging Time	06:00 & 18:00 (Dawn-Dusk Orbit)			
Revisit Time	28 days per month (InSAR) 3 to 4 days			
Collection Capacity (per day)	Up to 1,000,000 km ²			

I Know You Know 'Bhuvan'...



Satellite Data from Foreign Satellites

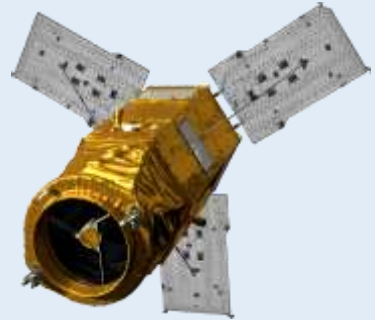
Data from the following foreign satellites is available at NRSC.

Sno	Satellite	Sensor
1	Landat-5	TM,MSS
2	SPOT-1	HRV1- MLA/PLA, HRV2-MLA/PLA
3	ERS-1 and ERS-2	SAR
4	NOAA	AVHRR
5	TERRA AND AQUA	MODIS
6	Landat-8	OLI & TIRS
7	SOUMI-NPP	VIIRS
8	KOMPSAT3/3A	PAN & MX
9	NovaSAR-1	SAR, AIS
10	JPSS1	VIIRS
11	Sentinel-1A/1B	SAR(IW)
12	Sentinel-2A/2B	MX

- NRSC (National Remote Sensing Center) / India
- Geo-Portal (Indian version of Google)
- Provided 1m resolution base map with KOMPSAT-2
- Also available KOMPSAT-3/3A

Upcoming Assets

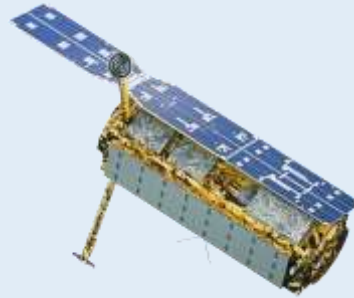
KOMPSAT Constellation



KOMPSAT-7

- EXPECTED LAUNCH IN 2024
- LT : TBD
- 1 PAN + 4 MS (R/G/B/NIR) + IR
- PAN : 0.3
- MS : 1.2M

**Res.
30cm**



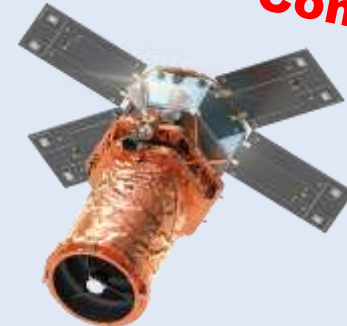
KOMPSAT-6

- EXPECTED LAUNCH IN 2024
- X-BAND SAR
- SPOTLIGHT : 0.5M (5KM)
- STRIP : 2.5~3M (30KM)
- TOPSAR : 20M (100KM)

**Res.
50cm**

SpaceEye-T

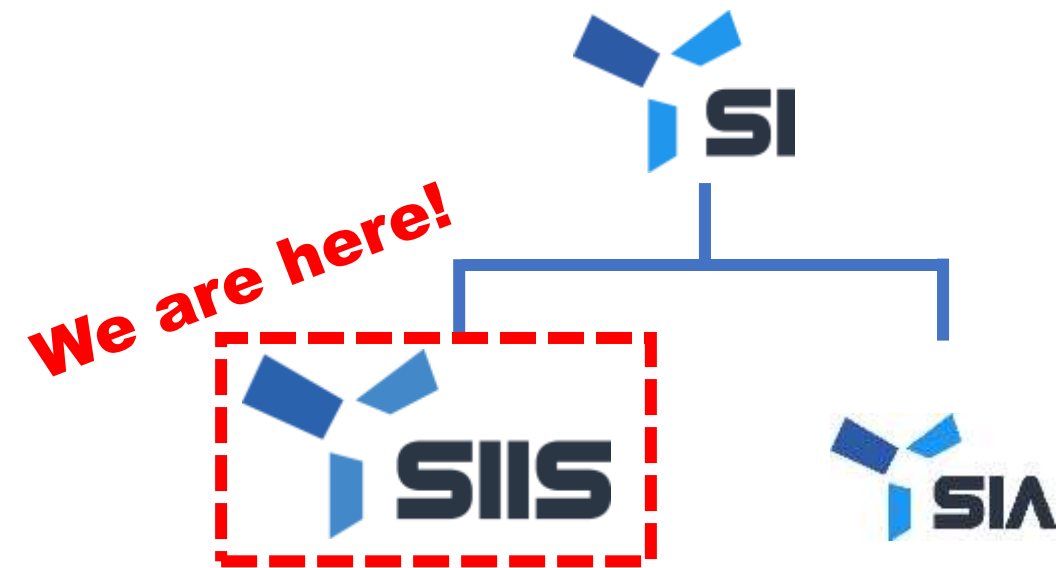
**100%
Commercial**



SPACE EYE-T

- EXPECTED LAUNCH IN 2024
- LT : TBD
- 1 PAN + 4 MS (R/G/B/NIR)
- PAN : 0.3M (12KM)
- MS : 2M (12KM)

**Res.
30cm**



The SI(Satrec Initiative) Group achieved four vertically-integrated business areas in Earth observation.

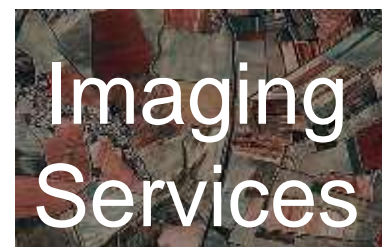
Four Engines of SI Group's Earth Observation Solutions



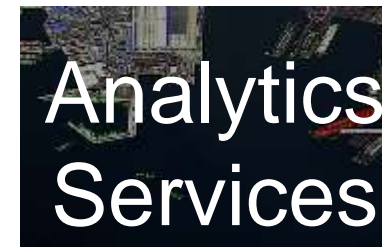
High-performance small/medium satellites



Highly reliable fixed & mobile ground systems



World-class Optical & SAR satellite imagery



AI-based satellite/aerial imagery analytics

Trusted By...



भारतीय सर्वेक्षण विभाग
Survey of India
विज्ञान और प्रौद्योगिकी विभाग
Department of Science & Technology



SAMSUNG

posco
INTERNATIONAL



BLACK SKY

ST Engineering



सत्यमेव जयते



VASUDHA
FOUNDATION
Green ways for a good earth!

LiveE

GISTDA

cmprc

Canada

URSA
SPACE

CBMM

elera
RENOVÁVEIS



UNIVERSITY OF
CAMBRIDGE

ENGIE

Indian Market

Global Market

168 Partners in **66** Countries (October, 2023)



Use Cases

For Indian National Digital Twin



Indira Gandhi International Airport

KOMPSAT-3

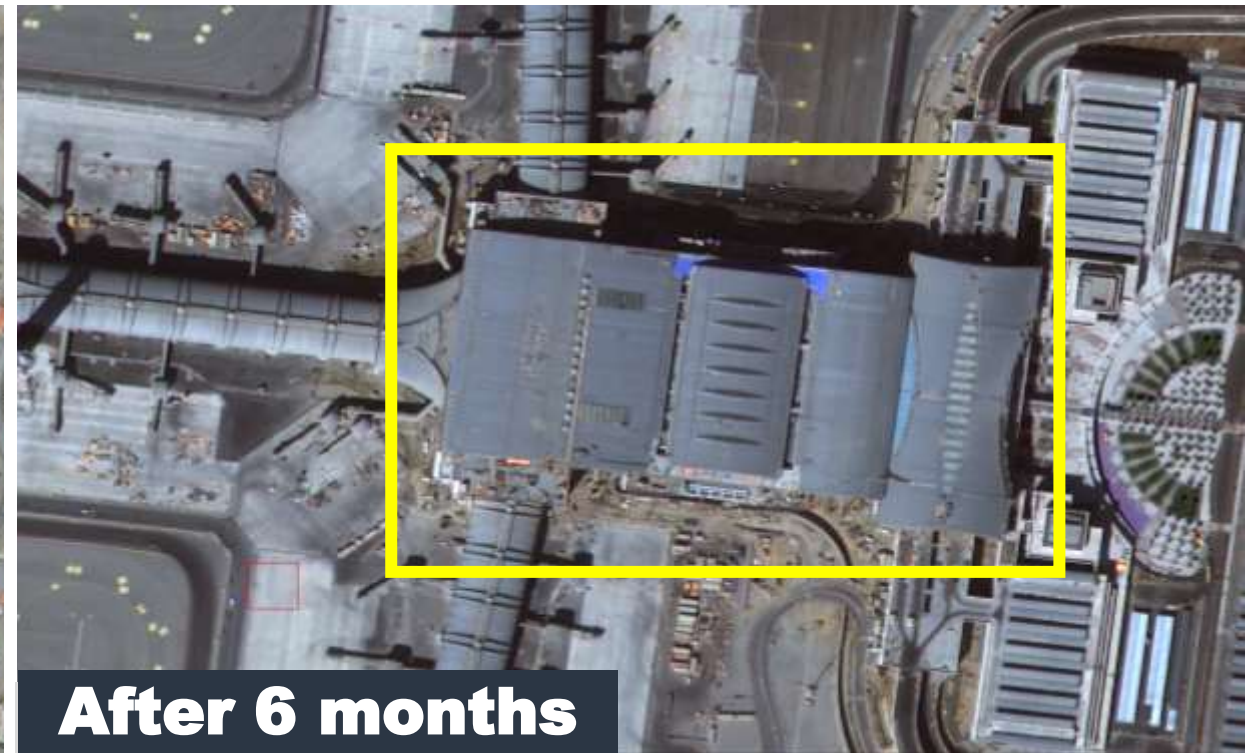
List of 25 Indian Carbon Neutral Airports

Name of Airports	
1 Punducherry	14 Pakyong
2 Kanpur Civil	15 Pantnagar
3 Hubballi	16 Dehradun
4 Belagavi	17 Dimapur
5 Mysore	18 Jalgaon
6 Tezu	19 Kohlapur
7 Kangra	20 Pune
8 Shimla	21 Aurangabad
9 Kullu	22 Gondia
10 Jammu	23 Akola
11 Srinagar	24 Sholapur
12 Leh	25 Juhu
13 Imphal	-

(Energy Intelligence, April 23)

Airport Monitoring

- By KOMPSAT-3 monitoring
- Airport **construction progress monitoring**
- Region/Area: Muscat International Airport, Oman



Monitoring for TIS



Figure 9: Demand heat maps for **BluSmart cabs** across Delhi National Capital Region (NCR)

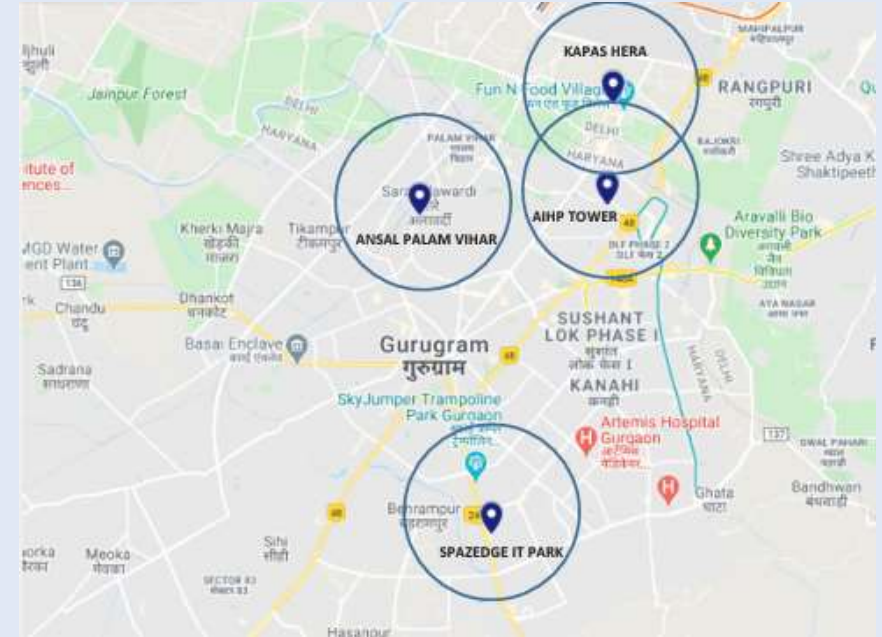
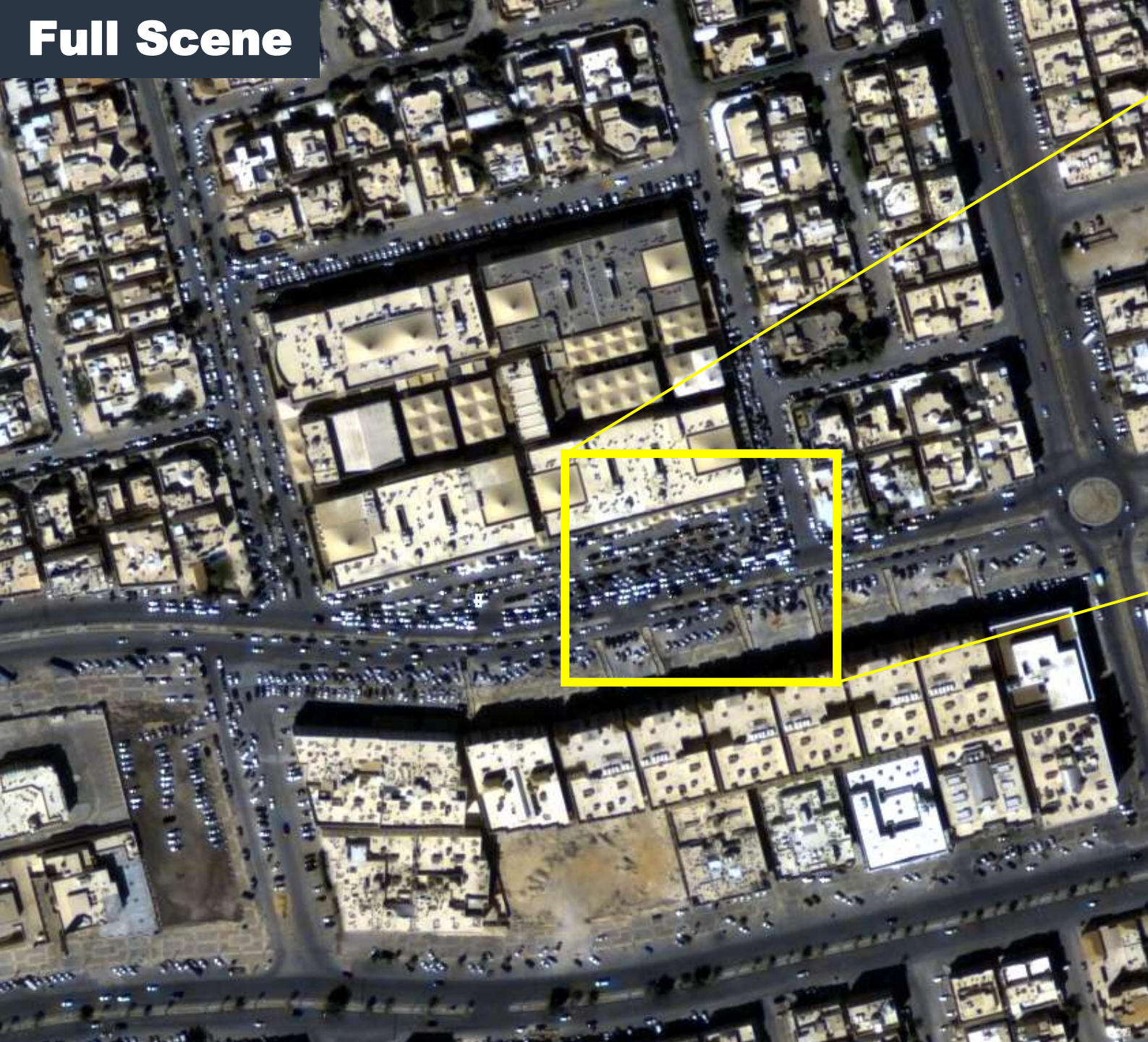


Figure 10: **BluSmart** charging hubs on a map of Gurugram

Full Scene



Zoom



Heavy Traffic

- Satellite: KOMPSAT-3A
- Purpose: Traffic Detection
- Remark:
 - Object detection using KOMPSAT's VHR images can be used as a solution to traffic problems in crowded urban areas

Gujarat International Finance Tec-City

KOMPSAT-3A



World Trade Center



Gujarat National Law Univ.



Eco-Friendly Energy, Environmental Improvement



**a photovoltaic dome
(Diameter 45m, Height 27m)**



an arched monument



Electric vehicle charging facilities



**School facilities in
New Town**



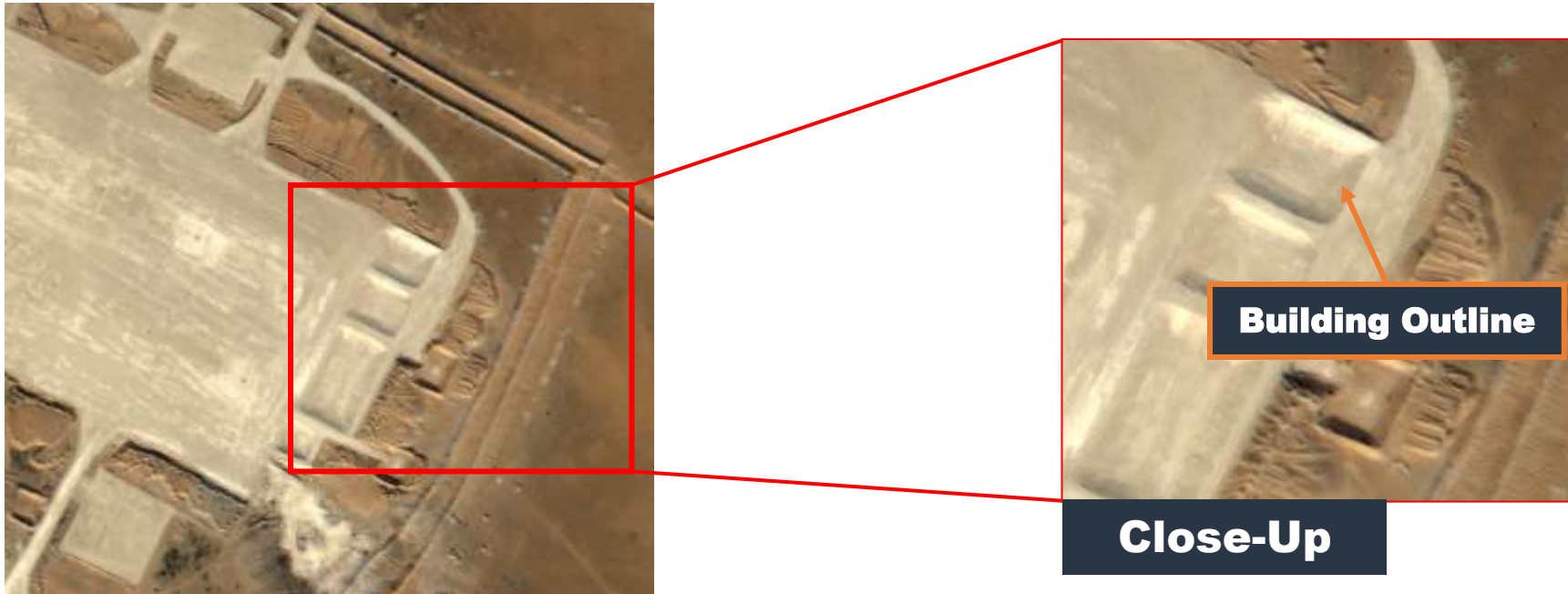
WiFi Tree



**Plastic Road
(using 850kg of plastic waste)**

Building Construction Monitoring

- By KOMPSAT-3A
- Construction progress monitoring
- Remarks:
 - E.g.) The resolution of KOMPSAT-3A has a good quality to identify the Building outline.





대구 데이터허브

교통

안전

행정

환경

에너지

(Smart City Korea, 2023)

Key Procedures for Building Up Digital Twin

e.g.)

1. Digital Twin Building Up Criteria
2. Digital Twin Building Up Target Selection
3. Digital Twin Building Up Work Procedure

4. **Basic Data for Digital Twin Building Up**

5. Model Construction Process

By KOMPSAT Data

6. Budget Design

-LX(Korea Land and Geospatial Informatix Corporation)-

Be With Us!

Contact: gs@si-imaging.com