



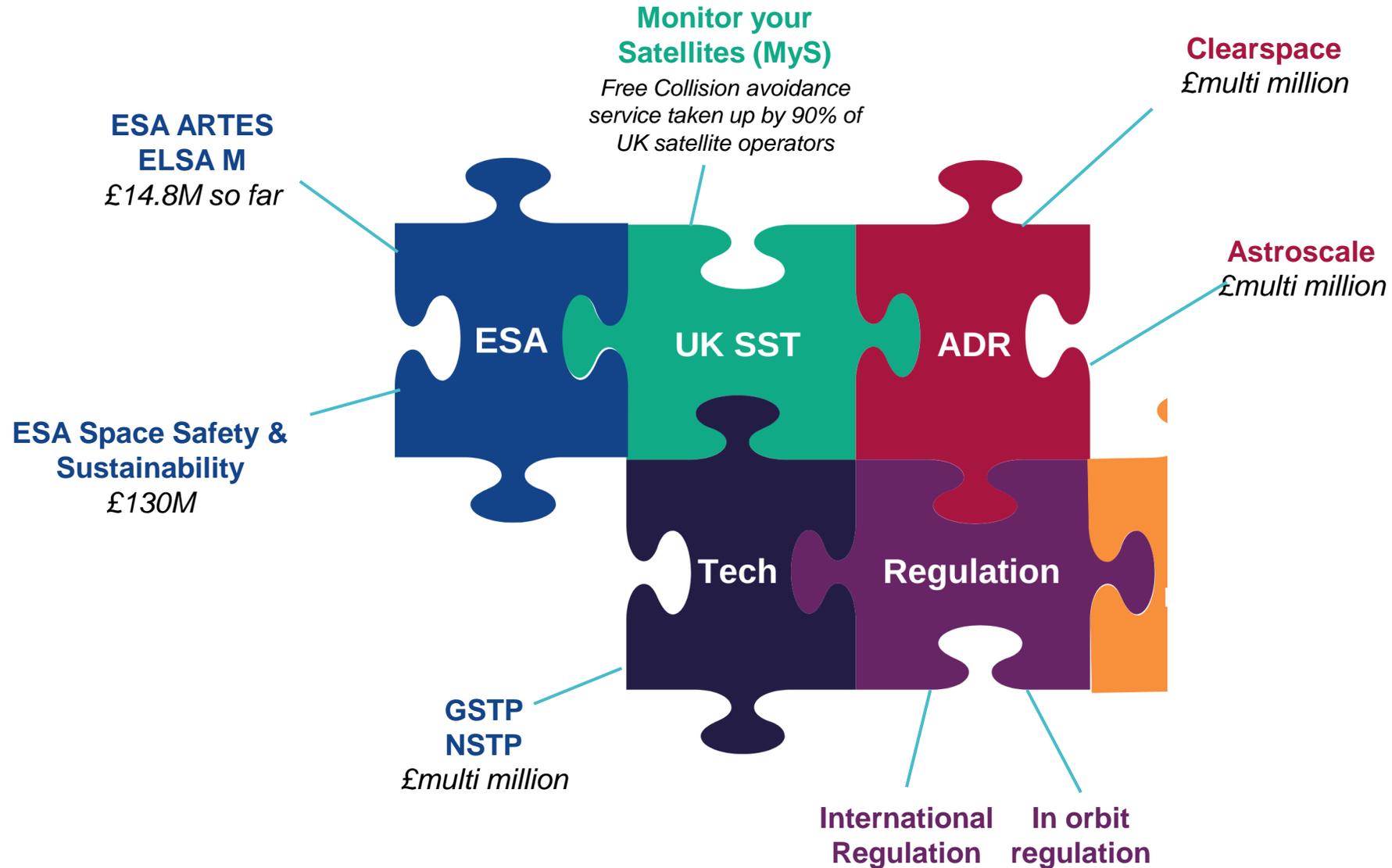
# UK Space Agency Space Surveillance and Tracking (SST) Overview

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# UK Space Agency: £175M commitment to a sustainable space





Satellite Operators



International collaboration



Industry & academia



Across - Government



Inter-Agency Space Debris Coordination Committee



The Science Inside



# UK's Civil SST Operational Service



## Observe/Data

- US Space-Track and other US data
- **National Sensors**
- Commercial contracts with **national and international sensor providers**
- UK operator ephemeris



## Analyse/Data Processing

- **Specialist SST/SSA/SDA software** – COTS packages and Bespoke software
- Developing software system with **SDA System**



## Analysis/ Knowledge

- Analysis of all types of space events relevant to HMG
- **Focus on CA, FRAG, RE, COMP**
- Civil and military Orbital Analysts **7 days a week, 365 days a year**
- Monitor between **4,000 UK conjunctions each month**



## Alert/ “So What?”

- **Reporting to government and international partners:** conjunctions, re-entry, fragmentation and other space events
- Reporting to industry: conjunctions via **Monitor Your Satellites**

# UK SST Operational Capability - Observe

*Objective: Maintain and develop UK global SST sensor network and access to global data networks*



**Observe**



Commercial providers:

- LeoLabs
- Slingshot
- Raytheon

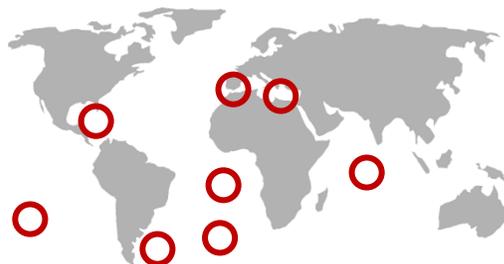
UK civil sensors:

- STFC's CASTR & COATS NERC's
- GEOF & laser ranger
- RAF Fylingdales



**1.4 million observation tracks from civil and commercial sensors**

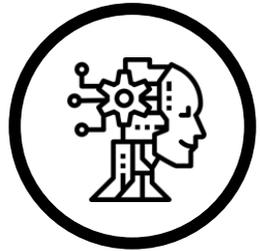
- Telescope
- Radar
- Laser



Strategic placement to fill gaps in worldwide coverage; UK positioning & co-operation with international partners and allies.

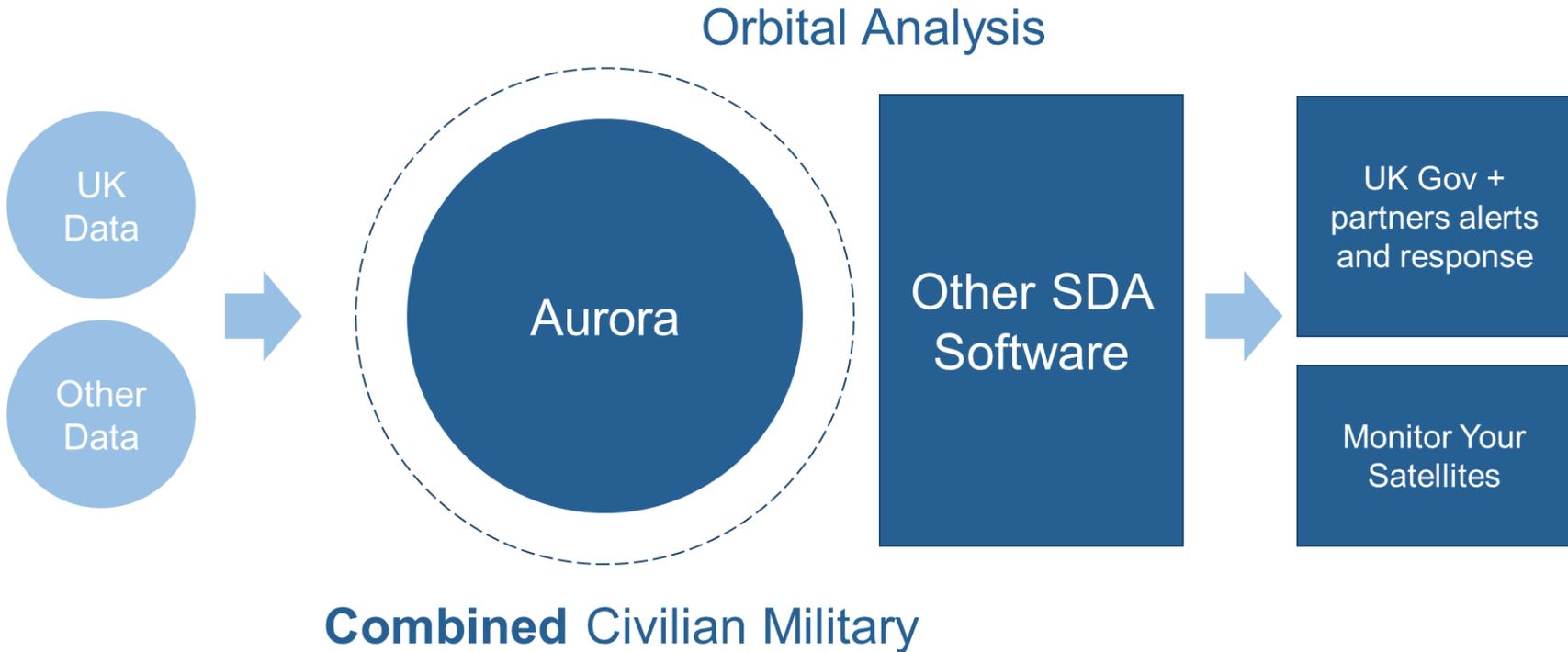
# UK SST Operational Capability - Analyse

*Objective: Maintain and develop SST systems and processes to analyse and interpret sensor data*



## Analyse

Team of 6 orbital analysts operating 365 days of the year



- **Bespoke analyst software**
- **Aurora:** SDA software capability

- 40,801** events monitored in 2022 resulting in:
- **60** re-entry incident reports
  - **30** conjunction incident reports
  - **3** fragmentation incident reports

# Monitor Your Satellites (MYS)

- Central system to notify UK satellite owner / operators about upcoming high probability collision events
- Easy to understand and high-quality data to users via an online platform
- Currently a free operational UK Service with 90% of UK active satellites registered but still developing based on user feedback
- Collates all conjunction information into one place
  - Conjunction data messages, object data, ephemeris
- Shares additional analysis by UKSA Orbital Analysts
- API layer available



GOV.UK Monitor your satellites

BETA This is a new service – your feedback will help us to improve it.

### Upcoming conjunction events

This table contains all events affecting your satellites.

Find a conjunction event:

Event information		Objects		Miss distance (m)		Probability of collision	
Your interest	Event ID	Time of closest approach (UTC)	Primary	Secondary	Mean radial	Total	Space-Track CDM
HIGH	zyzkox-agoobx-vdjd	13/06/2022 14:57:15	ONEWEB-0393	SL-12 R/B(2)	191.4	2329	1.6096e-6
	hygd-kgkrod-ffxg	13/06/2022 14:57:37	ONEWEB-0376	COSMOS 1275 DEB	1083.7	43589	0

GOV.UK Monitor your satellites

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### UK-licensed satellites

Find a satellite:

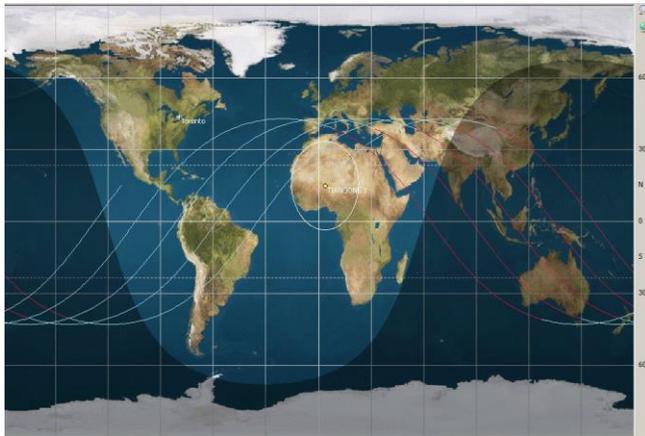
 

Common name	NORAD ID	International designator	Upcoming known conjunction events
<a href="#">Q3B_FM3</a>	40079	2014-038A	0
<a href="#">Q3B_FM19</a>	44113	2019-020B	0
<a href="#">SKYNET_4E</a>	25639	1999-009B	0
<a href="#">Q3B_FM10</a>	40348	2014-083A	0
<a href="#">SES_2</a>	37809	2011-049A	0
<a href="#">Q3B_FM14</a>	43233	2018-024C	0

# Collaboration is Key



Inter-Agency Space Debris Coordination Committee



- We have common aims across civil and military, internationally, and with industry – to operate **safely**, **securely** and **responsibly** in the space environment
- Active partner in develop and demonstrating “**norms of space behaviour**”
- **Data sharing** with international **partners is essential** to adapt to changing orbital environment
- **Closer working relationships with operators** will help overcome challenges
- Working with industry and academia to **find new market opportunities enabled by space surveillance data and data processing capabilities**

Questions?



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