

# The Perspective from ESA ECSAT Achievements, Challenges & Opportunities

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# Inauguration of ECSAT, 9<sup>th</sup> July 2015

## We've now been here seven years: what comes next?



Note: We are not an EU agency but have 22 European Member States including Norway & Switzerland, plus a cooperation agreement with Canada



# WORKFORCE @ ECSAT, Nationalities

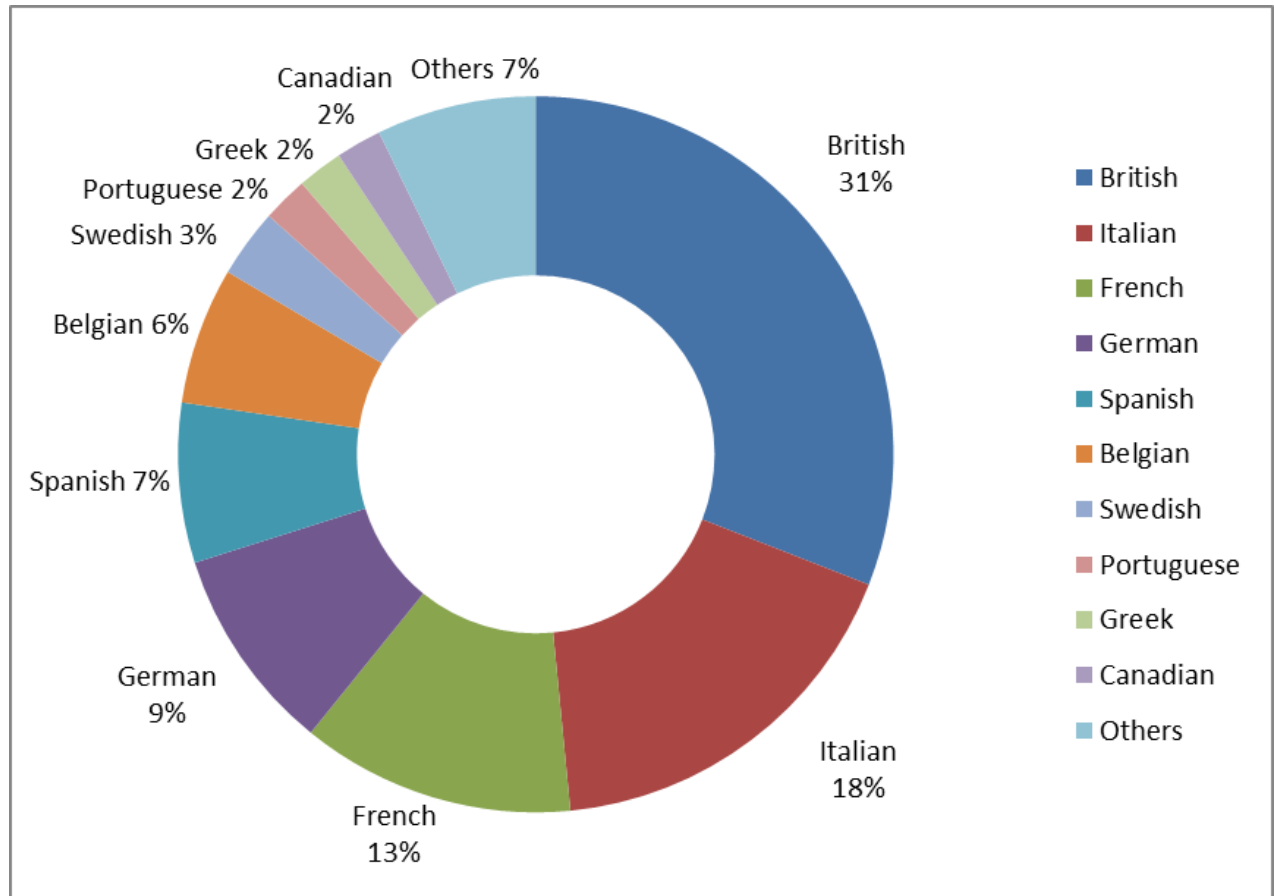
Workforce in ECSAT: 97 Headcount, 17 Nationalities

We can accommodate 120 people in the existing building but...

Brexit makes it harder to recruit & retain skilled staff

Nationality	HC
British	30
Italian	17
French	12
German	9
Spanish	7
Belgian	6
Swedish	3
Portuguese	2
Greek	2
Canadian	2
Others	7
<b>Grand Total</b>	<b>97</b>

Others	HC
Czech	1
Finnish	1
Austrian	1
Luxembourg	1
Swiss	1
Polish	1
Dutch	1





Together we have largely fulfilled the objectives in our MoU of November 2012, with ECSAT now fully operational.

For the next phase to 2020 we plan an increasing number and range of activities.

This will help to meet the challenge of economic growth in the Brexit era.





# An increasing number and range of activities

The main focus of activity at ECSAT is Telecommunications: the UK has a leading stake in ESA's programme of Advanced Research in Telecom Systems (ARTES).

The ESA Climate Office aims to expand its Climate Change Initiative and use of earth observation data.

Human and Robotic Exploration aims to grow its Harwell Robotics & Autonomy Facility, plus a research team to spin-out technologies.

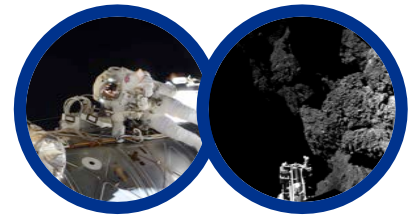
We also aim for wider use of the new ESA-RAL Advanced Manufacturing Lab; and to seek out disruptive and cross-cutting technologies.



telecommunications



earth observation

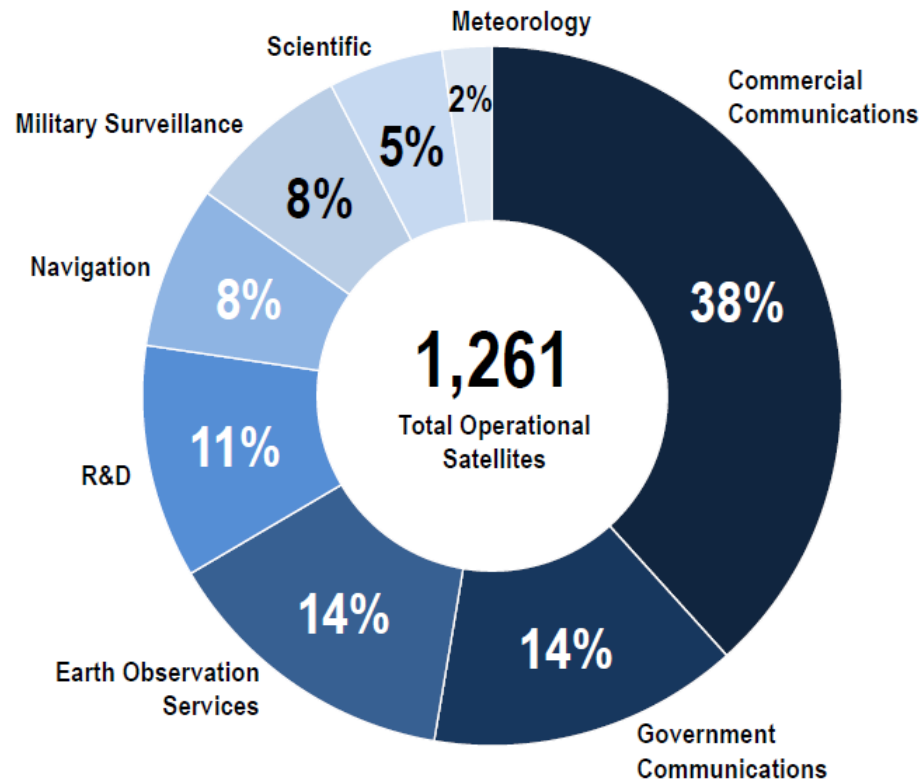


Human spaceflight & robotic exploration



technology

# In terms of operational spacecraft & revenues, Satellite Telecommunications (Satcom) predominates

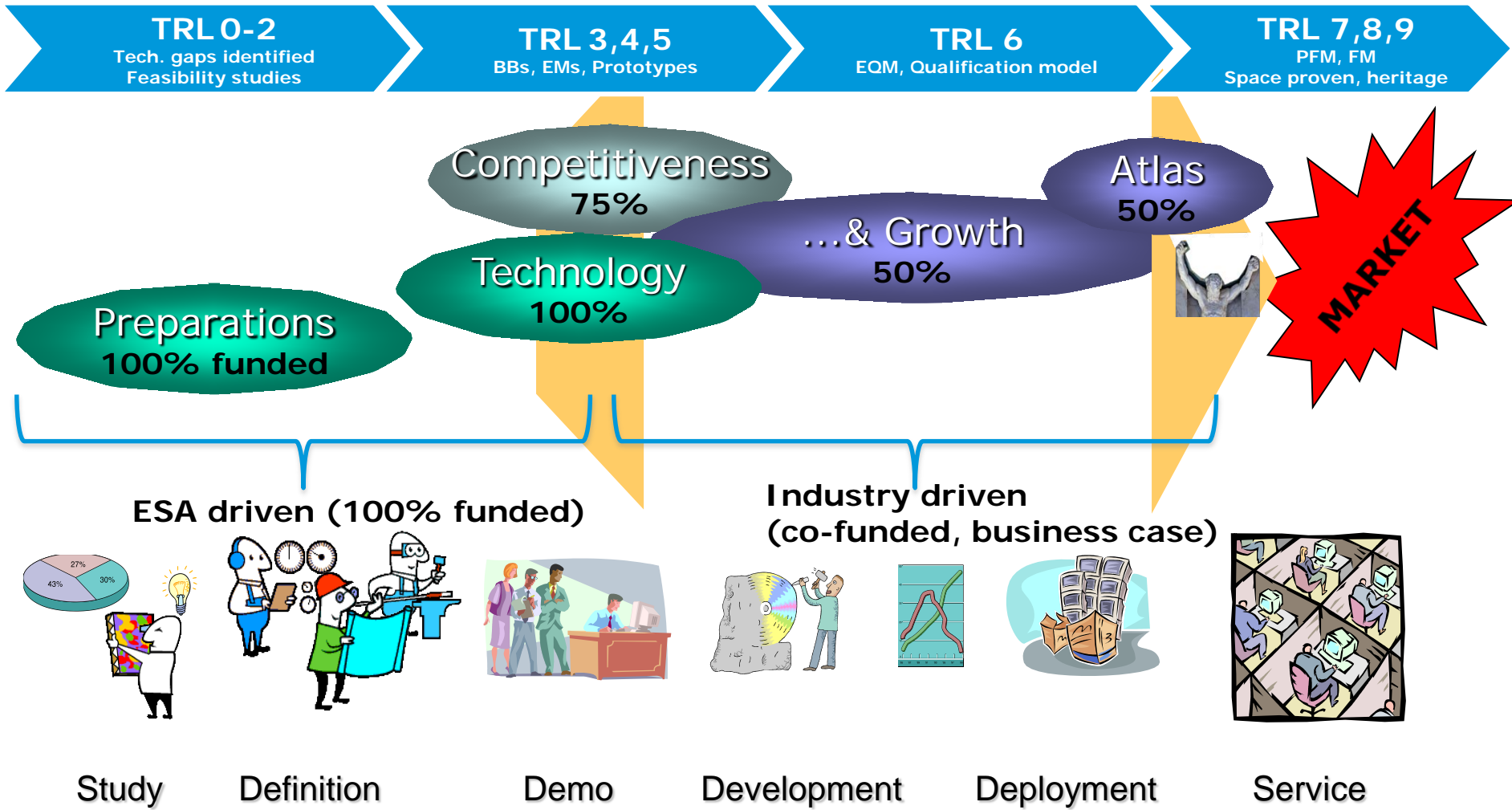


Proportion of Commercial and Government Communications Satellites remained broadly stable over recent years at >50%

...but demand is changing to connectivity anytime, anywhere... & all at same speed, please

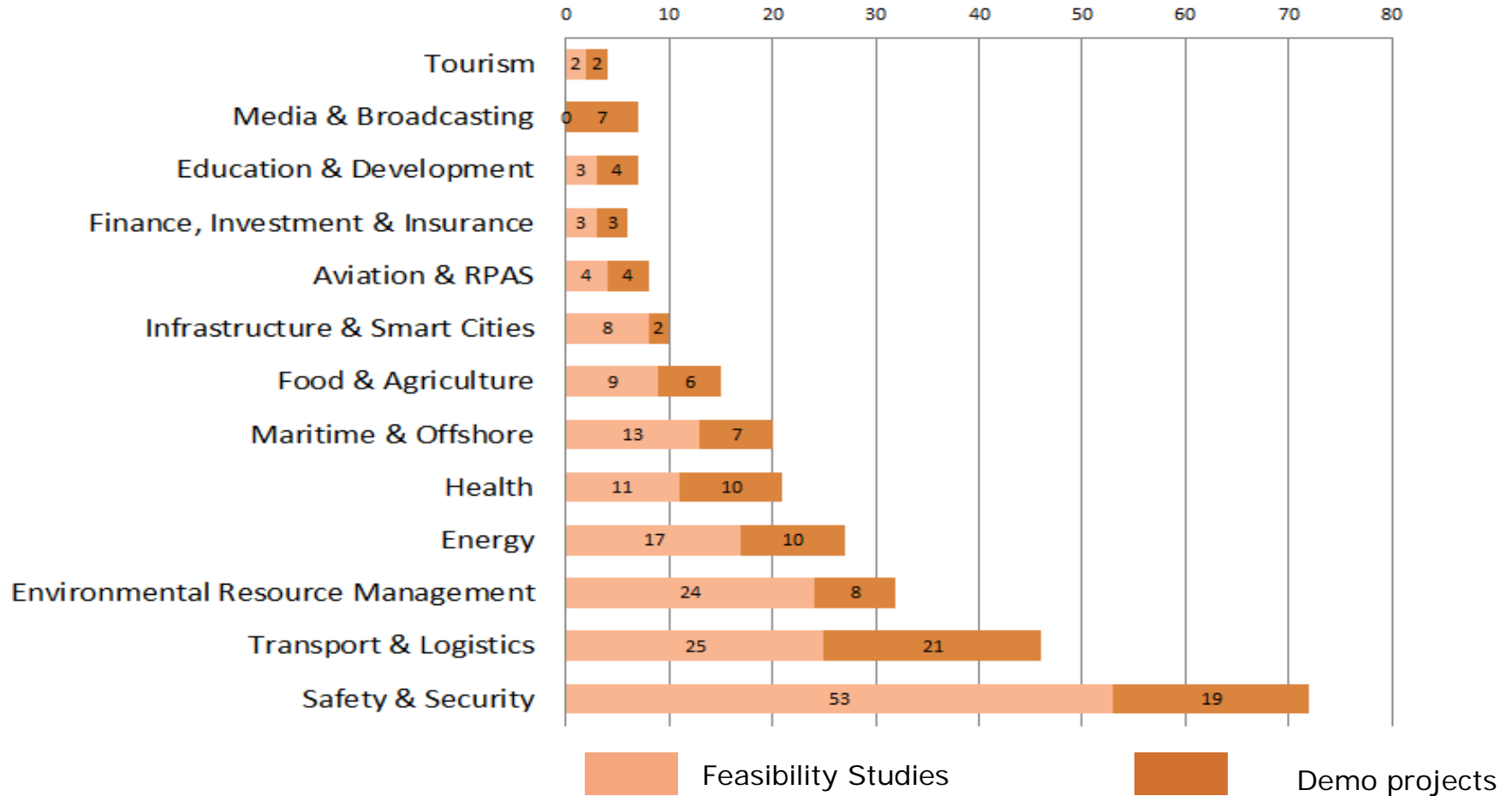


# ARTES Core Competitiveness support programme for Satcom products & services is now our most popular tool





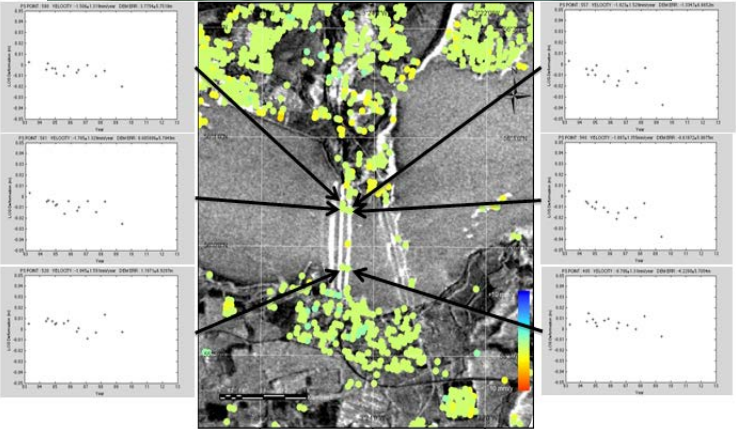
# Space applications are present in every sector, especially for critical resilience



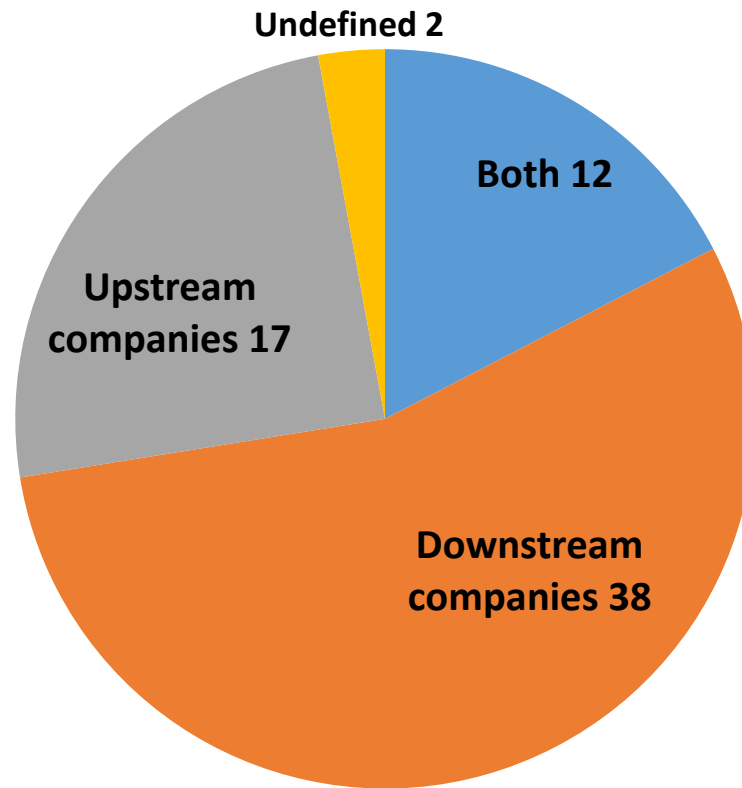
ARTES Co-funded applications projects by sector: but where are the best returns?



# How to build exports: critical infrastructure monitoring of the Forth Road Bridge and two bridges on the Yangtze (China has over 50% of the world's big bridges)



Harwell Space Cluster: when ESA arrived there were few space-related organisations at Harwell, now there are 69



But our collective challenge is to grow employment from 750 to 5,500 by 2030 (15% a year – we have been on target the last three years)





# New Opportunities: Space meets Health (oh, and education, too)

Follow-up to 21<sup>st</sup> September event with Tim Peake: calls for proposals are being formulated by a cross-disciplinary group

And there is an outstanding action to follow-up the Public Health England event of 22<sup>nd</sup> July in areas like environmental monitoring



The Campus is starting to act collaboratively but we all “need to try harder”

Inspiring and training the next generation workforce remains a huge challenge: how do we follow Tim Peake?

# Enlarge and Enhance ECSAT and the Business Incubators

The growth of the Space Cluster increases the need for a conference facility able to host major events. The current venues are too limited and lack integrated hospitality, networking and translation facilities.



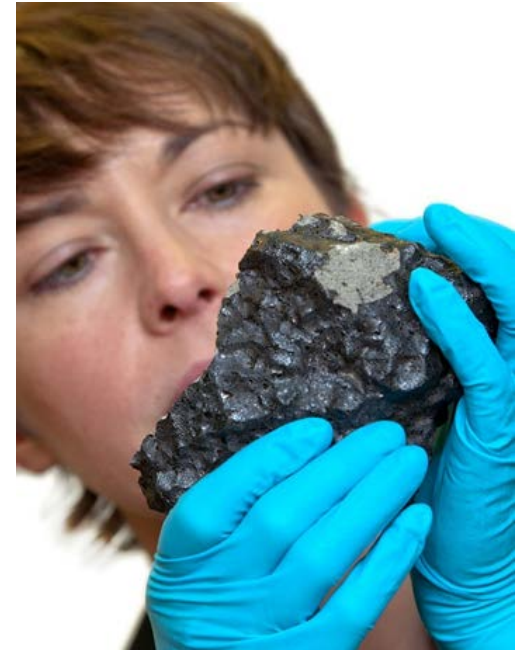
The ESA BIC plans to increase the number of companies nurtured, plus more engagement by ARTES with both ESA & non-ESA BICs



# New Opportunities to 2020 & beyond: Robotics & Autonomous Systems, Drones, Sample Curation

Subject to national agreement and funding, we could develop a bio-contained sample return and curation facility at Harwell for missions to Mars, the Moon...

We have identified interested parties with the aim of making Harwell into a centre for the development, testing and demonstration of drones.



We have an unfulfilled strategic objective to capitalise on our expertise in robotics, to penetrate mass markets in the automotive and transport sector.



# Harwell Campus & Didcot Garden Town

The space cluster is engaging with the team planning the regeneration of Didcot as a Garden Town.

This has the potential to resolve major issues such as the cost & variety of housing, local quality of life, transport links and congestion.



Together we can showcase sustainable, space-based solutions in areas such as environmental monitoring, town planning, intelligent transport, autonomous vehicles and smart infrastructure.

Let's bring space down to earth.