

Report on the UK – India workshop on Catalysing Commercial and Collaborative Opportunities between the UK and India in the Space Sector

Organised by:
UK Science & Innovation Network, India
jointly with
AcceleratorIndia-UK, Dhruva Space, India and UK Trade and Investment
on
10th March 2015, Bengaluru

Introduction

The [UK Science and Innovation Network](#), [UK Space Agency](#), [UK Trade and Investment](#), [Dhruva Space](#) and [AcceleratorIndia](#) ran a workshop aimed at developing commercial opportunities between UK and India players in the Space sector. The workshop was curated by Dr. Uday Phadke, Executive Chairman, AcceleratorIndia using the RiffStream# methodology to explore new ways of facilitating collaboration across this exciting sector in both countries as the basis for delivering commercial deals.

The focus for RiffStream#Bangalore-III was to build a detailed understanding of the rapidly evolving Indian space sector ecosystem and to identify real commercial opportunities within. To achieve this, players across the entire UK-India space sector value chain, including 'upstream' satellite design and build, launch infrastructures, 'mid-stream' flight management, control and systems, and 'downstream' applications and services were engaged.

Key Objectives & Benefits

- Start building a detailed understanding the overall Indian Space sector ecosystem, which is evolving rapidly and creating many new opportunities
- Initiate dialogues between UK and Indian players across all parts of the value chain
- Provide a framework for calibrating and continuing specific commercial dialogues for those participating
- Generate commercial deals through connecting UK and Indian companies and
- Generate research, insight and personal experience, for wider dissemination to extend the impact.

Key Discussions

- There have been significant and sustained investments made by the Government of India towards the development of a space ecosystem in India. Within this a number of societal applications have been created using 'space assets' including areas such as tele-medicine and tele-education. There are up to 500 Indian industries currently working within the ecosystem value chain and helping support indigenous technology development within the country.
- The Indian Space Research Organisation ([ISRO](#)) is the main driving force of the space ecosystem and there are several opportunities for the private sector to utilise the skilled manpower, infrastructure and technologies in India to expand their portfolio.
- The B2B collaboration between Indian and UK companies are at a nascent stage. Most Indian companies work as suppliers within the space value chain of India with little interaction at G2G, B2B and B2C levels on both the sides. While there is the concentration of Indian enterprises in the upstream (mostly Tier-2/Tier-3) products and services, there is a lot of scope to explore downstream products and services (for example GIS, GNSS based, IoT and asset tracking), which have immense commercial value. Promoting consistent engagement between Indian and UK enterprises will help finding more common ground and catalyse the potential to offer counterparts products and services in their respective markets.

- There is a strong upcoming “NewSpace” or entrepreneurial activity taking place in India through enterprises such as [Dhruva Space](#), [Team Indus](#), [Aniara Space](#), [Earth2Orbit](#), and Multiversal Technologies. These companies are trying to leverage space infrastructure, manpower and technology in India to offer taxpayer independent products and services from the Indian market.
- Although India has an extremely vibrant and strong IT infrastructure, the application of its IT skills and resources into the space sector has been limited. Several sectors such as insurance, asset tracking, and precision agriculture, among others are still to attain commercial maturity in leveraging space based information.
- There are significant opportunities with the “Make in India” campaign for UK and Indian companies to collaborate and target ‘Offset’ markets among others in the space ecosystem.

Key Recommendations

- AcceleratorIndia, working with players in the UK and India, should conduct a systematic comparative assessment of the Indian and UK space eco-systems and identify specific opportunities for collaboration.
- There should be regular bi-annual riffstreams#, in Bangalore and Harwell, to enable players in the UK and India to engage in deeper follow-up dialogue.
- The potential for funding cross-border initiatives, based on grant funding and seed funds, should be actively explored, including with Innovate UK and the Indian Space Ministry.

For more details, contact Sunil Kumar M at sunil.kumar@fco.gov.uk

Programme

Time	Agenda
08:30 - 09:30:	Registration, Coffee & Networking
09:30 - 10:45:	Session 1: Broader Opportunities in Perspective The UK Perspective: UK Space Agency Commercial Space Value Chain in India: Dhruva Space
10:45 - 11:15:	Coffee & Interaction
11:15 - 13:00:	Session 2: Opportunities in Nano-satellites, Sub-systems and Components Presentations by UK Players CRFS Oxford Space Systems Presentations by Indian Players Team Indus Aniara Space Dhruva Space Multiversal Technologies
13:00 - 14:30:	Lunch & Interactions
14:30 - 16:00:	Session 3: Applications and Services in Maritime, Road and Rail Transport, Future Cities and Agritech & Fisheries Presentations by UK Players Harwell Space Cluster DEIMOS Space UK Presentations by Indian Players Cyient Rangsons
16:00 - 16:30:	Coffee & Interactions
16:30 - 17:30:	Concluding discussions and Next Actions

List of Participants

Name	Affiliation	Designation
D S Govindarajan	Aniara Space Telecommunications	President
N Ramesh	Aniara Space Telecommunications	VP Engineering & Services
Narayan Prasad	Dhruva Space	Director of Space Craft Systems
Abhishek Raju	Dhruva Space	Director (Strategic Initiatives)
Ravi S	Dhruva Space	
Susmita Mohanty	Earth2Orbit	CEO
Prateep Basu	Northern Sky Research	Analyst
S Krupakar Murali	Multiversal Technologies	CEO and Chief Scientist
Gadhadar	NoPo Nano Technologies	
Sriram Jayasimha	Signion Systems Pvt Ltd	Chairman
Amitabh Shrivastava	CSIR Tech	Chief Executive Officer
Sridhar Ramasubban	Team Indus	Business Development Lead
Nakul Kukar	Team Indus	
P Syam Sundar	DIMIC Technologies Pvt Ltd	Managing Director
M Anil Kumar	SLN Technologies	Director
D S Suhas	SLN Technologies	Senior Executive
Dr G Raju	Centre for Emerging Technologies,	Professor of Electronics & Communication Engineering
Neriyani Srikumar	Larsen & Toubro Heavy Engineering	Deputy General Manager
S D Sudarsan	ABB	Technical Specialist
Victor Bharath	Aerospace Defence Security, Space	Director
Phani Pavan Kumar	Syratron Technologies	FAE Manager
Jayateerth Patil	Syratron Technologies	Senior Manager
Rajesh V Deshilinge Gowda	Copes Tech	Founder
TVS Rao	GMR Urban Infrastructure	Advisor
Neha Satak	Astrome Pvt. Ltd	

Prasad H L Bhat	Astrome Pvt. Ltd	
Sally Daultrey	Cogency Research Ltd	Consultant
Anthony Hart	AcceleratorIndia UK	
Uday Phadke	AcceleratorIndia UK	Executive Chairman
Reuben Wright	Deimos UK	Head of Satellite Applications
Kim Collaco	CFRS, UK	VP Business Development in AI
D R Venkatasubbu	Electronics Corporation of India Ltd	Zonal Manager
M S Venkatasubbaiaha	Electronics Corporation of India Ltd	Deputy General Manager
Sastry Veluri	Infosys	Industry Prinicipal
Ian Felton	BDHC	Deputy High Commissioner
Murtaza Khan	BDHC	Deputy Head of S&IN India
Sunil Kumar	BDHC	S&IN Advisor
Adeesh Boratkar	Parikshit student satellite	Systems Engineer
Sathish M	Design Esthetics	Founder and CEO
Rajesh VD	PES Institute of Technology	Head of Engineering and Services
Amita Pandey	Advant Techservices India Pvt Ltd	Managing Director
Renjan P	Xpoki	
Vinod Podar	Comtel Solutions	EVP Business Development
K R Amarnath	Teknotrades	
Manoj Patel	Mobitrack Technologies Pvt Ltd	Managing Director
Ravi Sarthy S	Startup Amigo	
Senthil Kumar	ET2C Sourcing India Pvt Ltd	General Manager
BL Pundareeka	L M Technologies	Consultant
Vivek Kimbahune	Saankhya Labs	Director
H S Raju	IIM Bangalore	Manager
Karthik Kumar	INAMICA	Senior Engineer
Neeraj Pandita	ISOLA	Executive Director
Anand Chakravarthy	European Business Group India	Regional Manager
Stanley Nirmal Kumar	Adaptive Processes	Business Development Manager