

55th IAA SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE
ACTIVITIES (D5)

Quality and Safety, a challenge for all in Space (1)

Author: Ms. Anshika Sahu

Indian Space Research Organization (ISRO), Liquid Propulsion Systems Centre (LPSC), India,
anshika_sahu@lpsc.gov.in

Mr. SHREEJITH TV

Liquid Propulsion System centre, India, tvshreejith@lpsc.gov.in

Mr. Robin Alexander

Indian Space Research Organization (ISRO), Liquid Propulsion Systems Centre (LPSC), India,
robinalexander@lpsc.gov.in

Mr. Sandeep Kumar

Indian Space Research Organization (ISRO), Liquid Propulsion Systems Centre (LPSC), India,
sandeepkumar@lpsc.gov.in

Mr. Ajith S

Liquid Propulsion System centre, India, s_ajith@lpsc.gov.in

Mr. Ganesh Pillai M

Indian Space Research Organization (ISRO), Liquid Propulsion Systems Centre (LPSC), India,
m_ganeshpillai@lpsc.gov.inA SUPPLY CHAIN COLLABORATION-BASED MODEL FOR THE REFORMED SPACE SECTOR
ECONOMY IN INDIA**Abstract****A supply chain collaboration-based model for the reformed space sector economy in India**Anshika Sahu^{1*}, Shreejith TV^{1*}, Robin Alexander^{1*}, Ajith S^{2*}, Dr. V Ravi^{3#}, M Ganesh Pillai^{4*}

*Liquid Propulsion Systems Centre, Valiamala

Indian Space Research Organisation, Trivandrum, Kerala, India – 695547

#Indian Institute of Space Science and Technology

Indian Space Research Organisation, Trivandrum, Kerala, India – 695547

The supply chain impacts the life cycle of each product and service from the conceptual design phase to high volume manufacturing. The space economy supply chain is complex and challenging as it involves upstream members as material and components suppliers, manufacturers of space systems, ground systems and other subsystems. This supply chain also involves downstream space operations such as satellite broadcasting, GNSS service providers and products and services from spin-offs or technology transfer from the space sector. In 2020, Global space economy turnover was approximately 446.9 billion U.S. dollars compared to 428 billion U.S. dollars in the previous year. Thus, the space economy turnover has

been steadily increasing in recent years. The Indian space sector is globally acknowledged for its cost-effective technology development and missions. However, the present share of the Indian space economy is approximately 2-3% of the global space economy. The Government of India plans to achieve a market share of greater than 10% in the space economy by 2030. For achieving this ambitious target, many reforms were introduced in the space sector, major ones being the inclusion of private companies and start-ups in 2020. To boost the space economy, the enhancement of space technology diffusion through the participation of private enterprises is essential. Many Non-Government-Private-Entities (NGPEs) in India have already started engaging in space activities such as making launch vehicles, satellites and space-based services for commercial gains. This paper attempts to develop a supply chain collaboration model for the NGPEs to take a meaningful role in the reformed space sector landscape and develop cost-effective and innovative technologies.

Keywords: Supply chain; Supply chain collaboration; Space economy supply chain.