# Clelia lacomino

# Commercial Space Exploration Potential Contributions of Private Actors to Space Exploration Programmes





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### **About the Author**

**Clelia Iacomino** is working as Resident Fellow at the European Space Policy Institute (ESPI) in Vienna, Austria, under a fellowship from the Italian Space Agency (ASI) and the Italian Society for International Organization (SIOI).

Previously, she worked as Analyst at Thales Alenia Space at the Strategic Business Intelligence Department in Rome. She holds an MA in international relations from La Sapienza University and a Master of Advanced Studies in space policy at SIOI-ASI-CNR, Rome.

# Acronyms

AES Advanced Exploration Systems Division

ASI Italian Space Agency
ASTP Apollo—Soyuz Test Project
BAA Broad Agency Announcements
BIC Business Incubation Centres

C3PO Commercial Crew and Cargo Program

CAPEX Capital Expenditures

CASIS Center for the Advancement of Science in Space

CATALYST Lunar Cargo Transportation and Landing

CCDev Commercial Crew Development CCP Commercial Crew Program

CFI Call for Ideas

CLEP Chinese Lunar Exploration Project
CMSA China Manned Space Agency
CNES Centre National d'Etudes Spatiales
CNSA China National Space Administration

CoECI Center of Excellence for Collaborative Innovation

COF Columbus Orbital Facility

COPUOS Committee on the Peaceful Uses of Outer Space COTS Commercial Orbital Transportation Services

CRS Commercial Resupply Services
CSOC Common Operation Costs
CSS Chinese Space Station
DLR German Aerospace Center
DSG Deep Space Gateway
DST Deep Space Transport

E3P European Exploration Envelope Programme

EF Exposed Facility

ELIPS European Programme for Life and Physical Science and

Application in Space

xii Acronyms

EPC Engineering, Procurement, and Construction

ER&T Exploration Research & Technology

ESA European Space Agency

ESPI European Space Policy Institute

EU European Union

ExPeRT Exploration Preparation, Research, and Technology

FAA Federal Aviation Administration
GER Global Exploration Roadmap
GLXP Google Lunar XPRIZE
HTV H-II Transfer Vehicle

IAC International Astronautical Congress

ICT Information and Communications Technology ILDD Innovative Lunar Demonstrations Data

InSight Interior Exploration using Seismic Investigations, Geodesy and

Heat Transport

IPC Industrial Policy Committee

ISECG International Space Exploration Coordination Group

ISEF International Space Exploration Forum ISRO Indian Space Research Organisation

ISRU In-Situ Resource Utilization

JAXA Japan Aerospace Exploration Agency
JKIC Joerg Kreisel International Consultancy
LEAG Lunar Exploration Analysis Group

LEO Low Earth Orbit

LSP Launch Services Program

MPLM Multi-Purpose Logistics Modules MPO Mercury Planetary Orbiter MSL Mars Science Laboratory

NASA National Aeronautics and Space Administration
NextSTEP Next Space Technologies for Exploration Partnerships

NSC National Space Council NTL NASA Tournament Lab

O&M Observations and Measurements

OCST Office of Commercial Space Transportation

OPEX Operating and maintaining it
Orion CEV Orion Crew Exploration Vehicle
OrionMPCV Orion Multi-Purpose Crew Vehicle

PILOT Precise and Intelligent Landing using On-board Technology

PM Pressurized Module
PPP Public-Private Partnership

PROSPECT Platform for Resource Observation and in-Situ Prospecting for

Exploration, Commercial exploitation and Transportation

PSC Public Sector Comparator
PSLV Polar Satellite Launch Vehicle
R&D Research and Development