



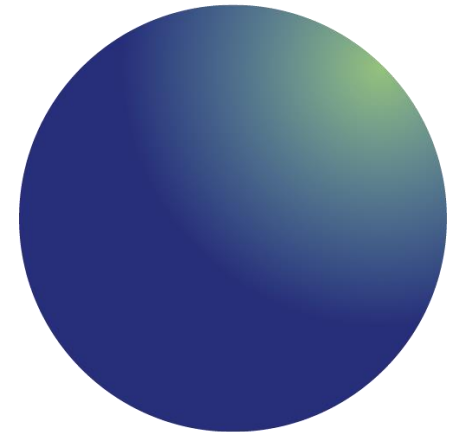
LUXEMBOURG
SPACE AGENCY



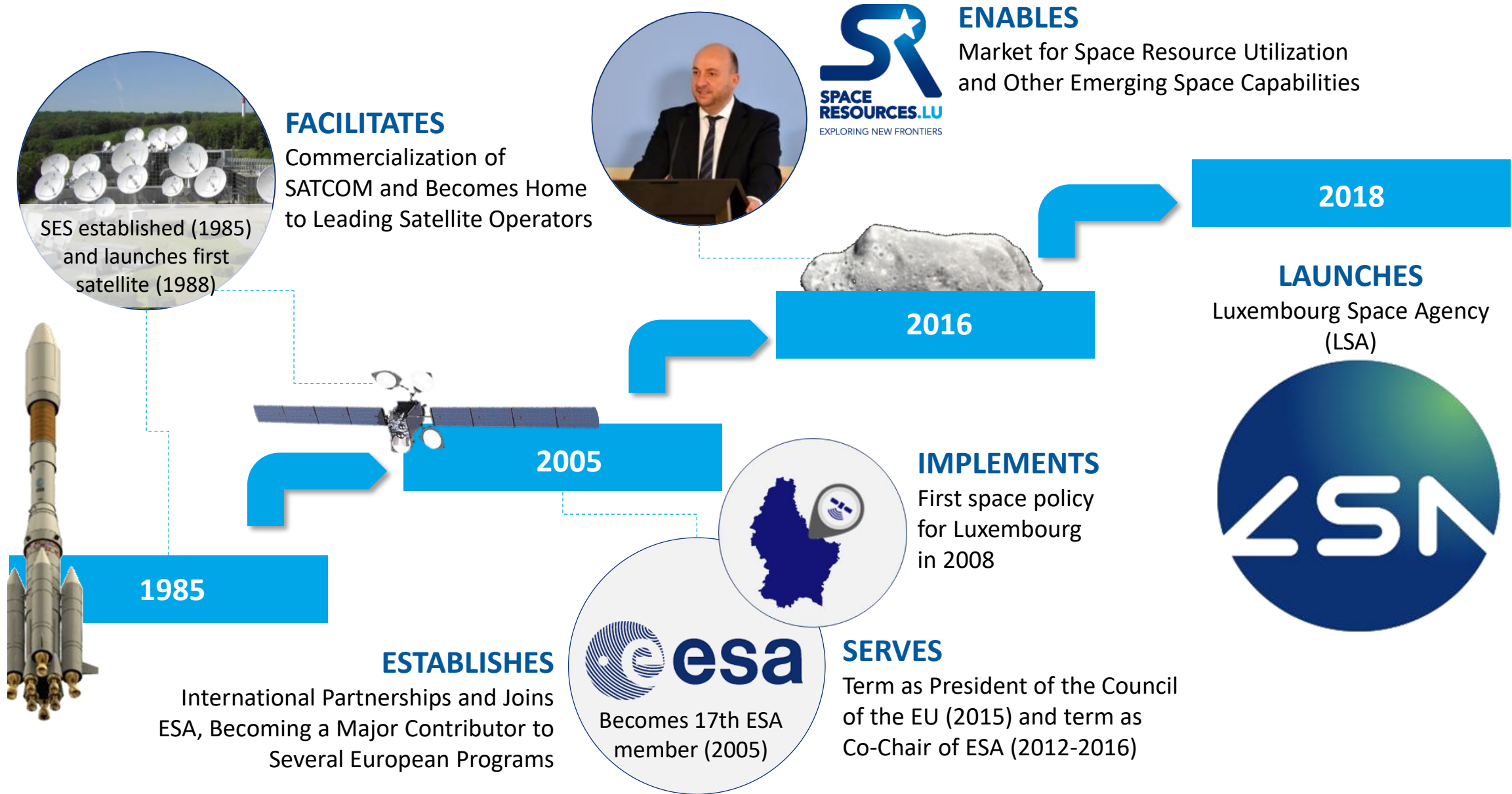
Update from Luxembourg Presentation and Discussion

Bob Lamboray
Luxembourg Space Agency

*58th European Space Sciences Committee Plenary Meeting
2 October 2019*











MISSION

Develop Luxembourg Space Sector



Economic Growth

*Creation of key skills and
jobs Turnover/revenue
generation*



Space Ecosystem Enhancement

*Development of an
ecosystem involving space
and non-space entities*



Local Talent Development

*Training local talent in relevant
fields to support Luxembourg
rapidly growing space industry*



International Engagement

*Contribution to Luxembourg
nation exposure and branding
efforts on the international stage*

40+ PUBLIC AND PRIVATE ACTORS WITH CAPABILITIES ACROSS THE SPACE VALUE CHAIN

Space Segment

Ground Segment

In-Space Operations

Analytics / Services

Space Segment: OHB LUXSPACE, EmTroniX (electronics and software solutions), EURO-COMPOSITES®, i space, KLEOS GEOLOCATION INTELLIGENCE, AISTECH (Access to Intelligent Space Technologies), SPARC INDUSTRIES SÀRL

Ground Segment: HITEC LUXEMBOURG, GRADEL, spire, OO TECHNOLOGY, GOMSPACE, MADE IN SPACE EUROPE, ODYSSEUS, mpg. (molecular plasma group), SATURNE Technology

In-Space Operations: SES (your satellite company), GOV SAT, ebrc (EUROPEAN BROADCASTING RESEARCH AND TRAINING CENTRE), HYDRÔSAT, inverto, BLUE HORIZON, SkyfloX, SNT (securityandtrust.lu), telindus (belgacom ICT)

Analytics / Services: adwäisEO, itrust consulting, LUXTRUST®, space 4 environment, LUXSENSE geodata s.à.r.l., RSS-Hydro, S.à.r.l.-S, LIST (LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY), UNIVERSITÉ DU LUXEMBOURG



Luxembourg aims to contribute to the peaceful exploration and sustainable utilization of space resources for the benefit of humankind



SpaceResources.lu FIVE STRATEGIC PILLARS

POLITICAL SUPPORT

Ensure national political support and promote international cooperation



LEGAL FRAMEWORK

Build clear legal framework and engage internationally



RESEARCH & EDUCATION

Promote long-term public support and workforce engagement by education and R&D



INNOVATION, R&D

Provide dedicated support for industrial R&D activities



FUNDING INSTRUMENTS

Develop long-term funding instruments



International Engagements



ESA



European Union



United Nations

International Advisory Board



Organization and Engagement in Various Events



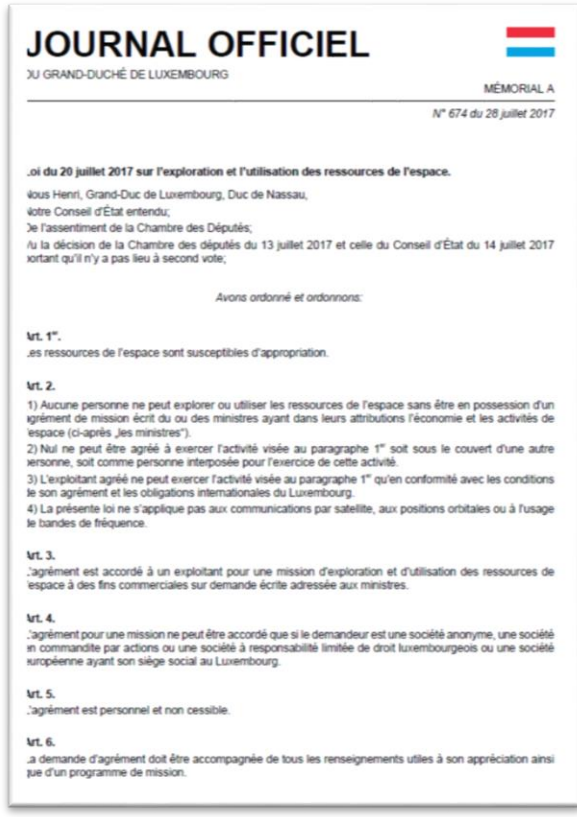
Paris Air Show



Bilateral Agreements Signed



National Law on the Exploration and Use of Space Resources (2017)



Hague International Space Resources Governance WG

20 building blocks for a future international framework



UN-COPUOS



Luxembourg encourages discussions on space resources exploration and utilization in all relevant international fora, in particular in the Legal Subcommittee of the UN-COPUOS.



Specific Agreement Signed in 2017



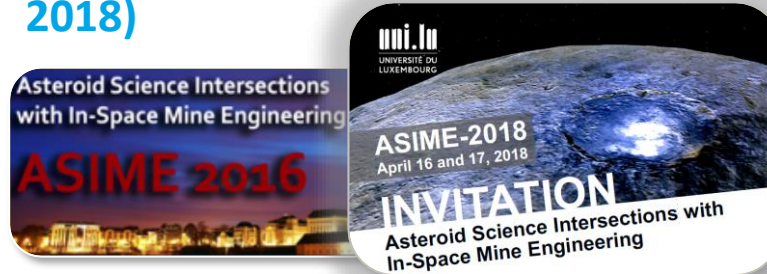
Cooperation in Community Building

ESA Space Resources Strategy Published in May 2019

National Research Institutions Have Become Active in ISRU



Asteroid Science Intersections with In-Space Mine Engineering (2016 and 2018)



LSA research

LSA will create a new research arm within LSA with a strong focus on space resources.

LSA is establishing a Space Resources Research Center with national and international partners.

Interdisciplinary Space Master Starting in Fall 2019

Interdisciplinary Space Master

UNIVERSITÉ DU LUXEMBOURG | ZSN

FACULTY OF SCIENCE, TECHNOLOGY AND COMMUNICATION

- Degree:** Interdisciplinary Space Master (ISM)
- Duration:** 2 year full-time programme / 4 semesters or 4 year part-time programme / 8 semesters. 120 ECTS
- Teaching language:** English
- Objectives:** This Master is an **innovative balance of business and technology** teaching and learning. From rocket science to the management of space businesses, the students will acquire various skills required by the space industry and develop the entrepreneurial mind-set required to be successful in the **emerging future space industry**.
The ISM programme provides solid knowledge in **all aspects of the space value chain**, along with space engineering expertise. In addition, the course will provide business and management tools enabling students to start their own space companies or contribute in non-technical areas of existing companies.

Interdisciplinary training
problem based learning approach
and from the Luxembourg Space Agency (LSA)

LUXEMBOURG SPACE AGENCY

mission is to promote the
to the education pillar

Includes modules on space resources exploration & utilization

Different Instruments Available through Partnership with ESA, SNCI and VCs

- Grants
- Early-stage and growth-stage financing
- Debt Financing



Cooperation Agreement Signed with the European Investment Bank (EIB)



“The largest multilateral investment bank”

Encouraging Innovation in the Financing of Space Ventures, a Joint Initiative with EIB



Thank you for your attention!



Upcoming events!

