

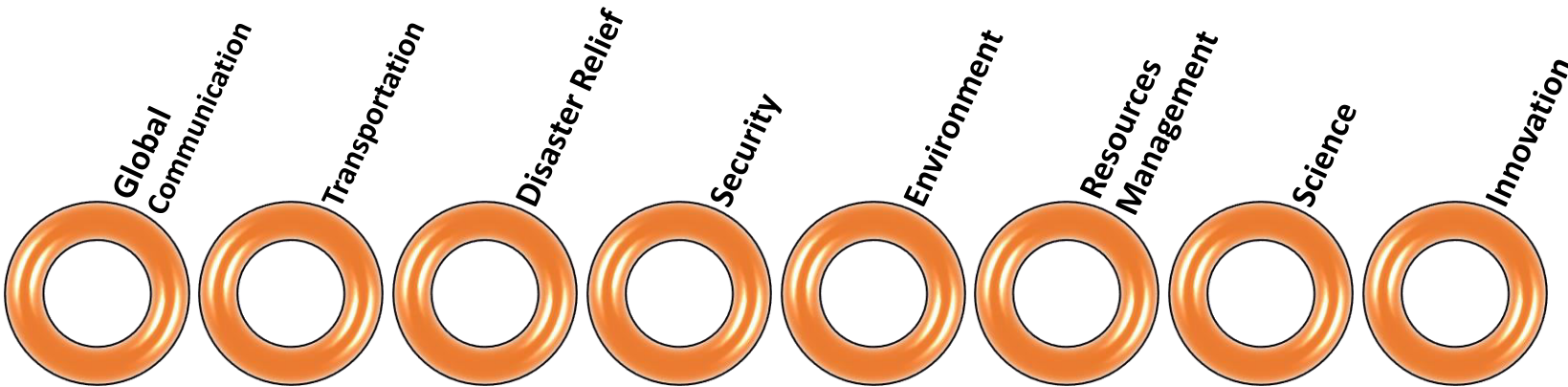
Towards Long Term Sustainability of Space Activities

HLF, Dubai 6–9 Nov 2017



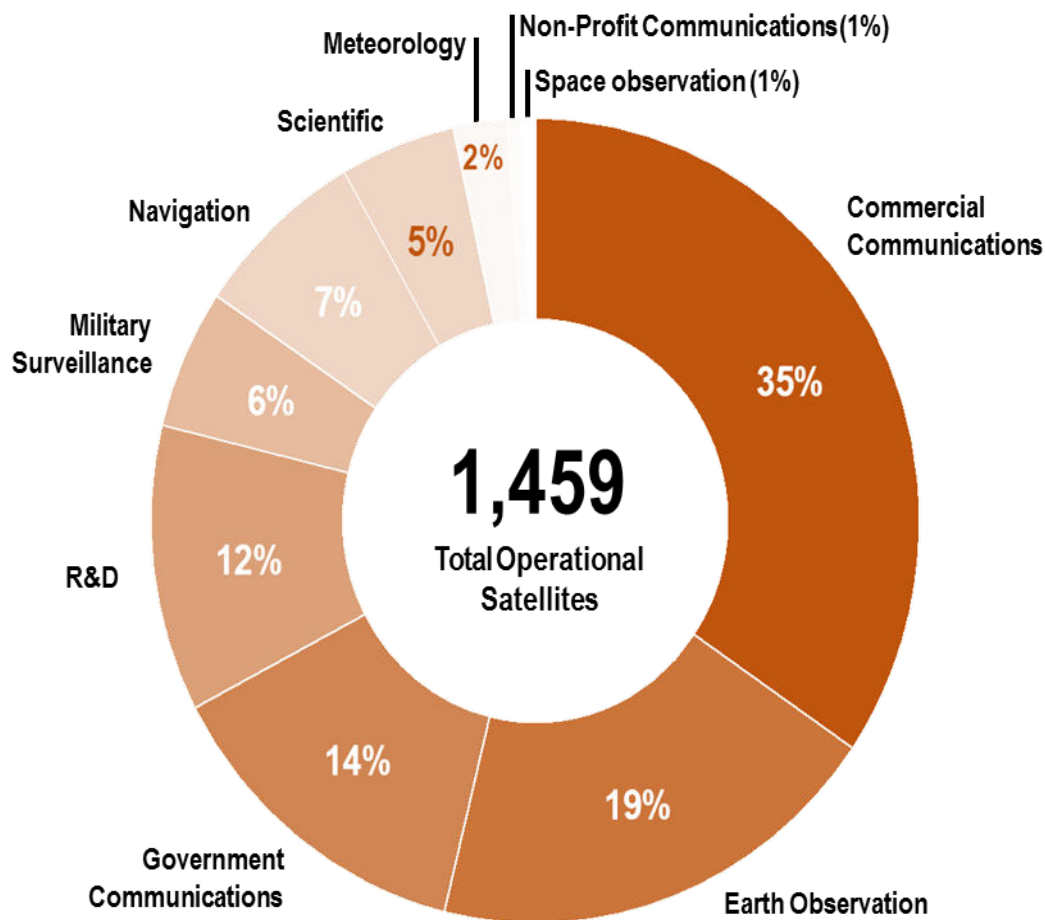


Space Criticality





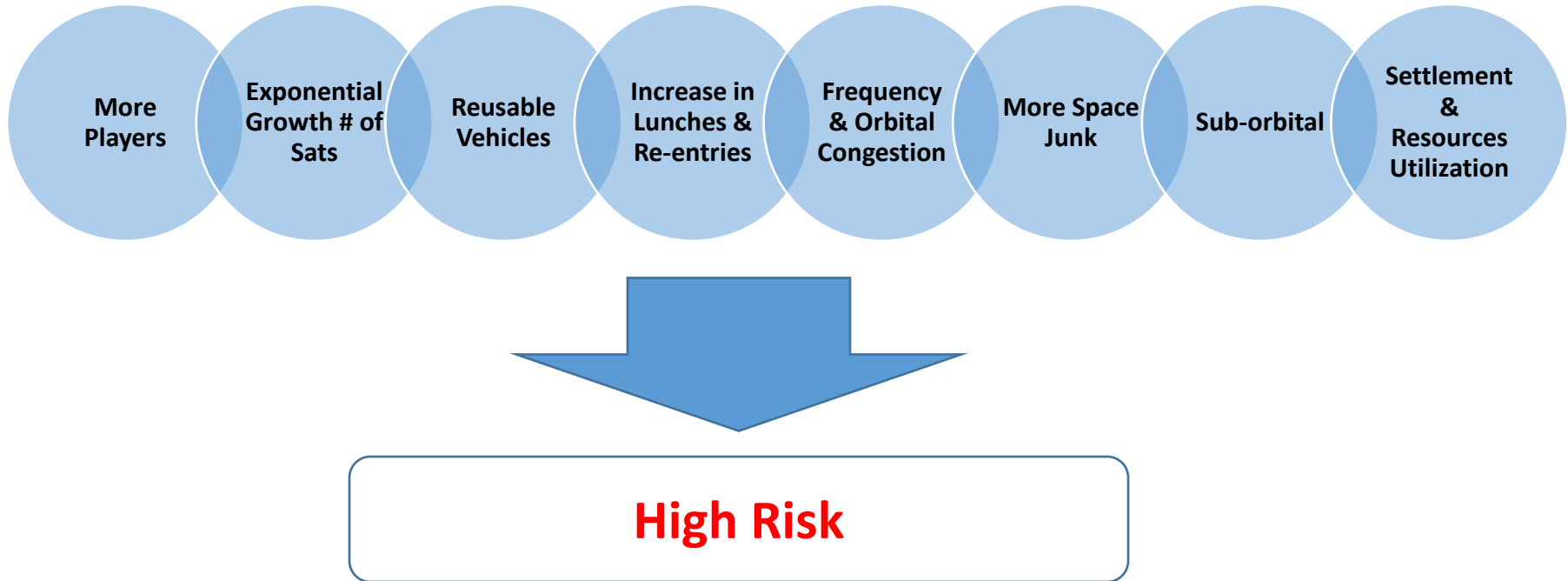
Space Growth



- Number of satellites increased 47% over 5 years (from 994 in 2012)
 - » Satellites launched 2012 — 2016 increased 53% over previous 5 years
 - » Average 144/year
 - » Due mostly to small/very small satellites in LEO (<1200 kg)
 - » Average operational lives of larger (mostly communications) satellites becoming longer, exceeding 15 years; 247 active sats launched before 2002
 - » 520 satellites in GEO (mostly communications)
- 59 countries with operators of at least one satellite (some in regional consortia)
- U.S. entities operate 594 satellites



Global Space Trends



LTS Guidelines

- ❑ In 2010, UN COPUOS established WG on the Long-Term Sustainability (LTS) of Outer Space Activities.
- ❑ Scope: propose measures to ensure the safe and sustainable use of outer space for peaceful purposes and for the benefit of all countries. The final product is voluntary best-practice guidelines for space actors to help ensure the long-term sustainable use of outer space.
- ❑ The draft guidelines are broken into four main categories:
 - Policy and regulatory framework for space activities
 - Safety of space operations
 - International cooperation, capacity-building, and awareness
 - Scientific and technical research and development
- ❑ Delegations finalized 12 of the then 29 guidelines.
- ❑ Recognizing that the remaining guidelines were at varying levels of maturity, the workplan was extended to be finalized by the 2018 Plenary.



12 Approved LTS Guidelines

In June 2016, consensus was reached on the following 12 LTS Guidelines:

GL1: Adopt and revise regulatory framework

GL2: Consider number of elements when developing regulatory framework

GL3: Supervise the national space activities

GL4: Ensure rational and efficient use of spectrum & orbits

GL12: Improve accuracy of orbital data on space objects & practice for sharing orbital info

GL13: Promote collection, sharing of Debris monitoring Info

GL16: Share operational space weather data & forecast

GL17: Develop space weather models, tools, and established practices to mitigate space weather effects

GL25: Support capacity building

GL26: Raise awareness

GL27: Support sustainable use and exploration of space via R&D and other means

GL28: Investigate new measures to manage space debris





National Policy Alignment with LTS



1 Principles

P1. Enhance the Lives of our Citizens

P2. Support UAE National Interests

P3. Support Growth and Diversification of our Economy

P4. Promote Collaboration and Support UAE status

P5. Respect International Laws and Treaties

2 Goals

G1. Expand the Utilization of Space to Protect and Support Vital Sectors

G2. Develop a Sustainable, Competitive and Innovative Commercial Space Industry

G3. Conduct Scientific Space Missions

G4. Promote a Safe and Stable Space Environment

G5. Establish and Expand UAE's Leadership in Space

3 Enablers

E1. Continuous Awareness of the Importance of Space and its Activities

E2. Qualified UAE Space Professionals

E3. Effective and Attractive Space Regulatory Environment

E4. Active Management of Radiofrequency and Satellite Orbital Resources

E5. Effective Science, Technology and Innovation Programs

E6. National, Regional and Global Collaborations, Coordination and Partnerships

E7. Adequate Investment and Financial Support

E8. Supporting Facilities and Infrastructure



GL1 GL2 GL3 GL4 GL12 GL13 GL16 GL17 GL27 GL28

4 Guidelines

GL1. National functions guidelines

- Provide support to national security capabilities
- Enhance national capabilities for disaster monitoring and response
- Support national activities in humanitarian aid
- Provide support to key UAE industries
- Utilizing space technology to improve the quality of life of UAE people
- Support national capabilities for natural resources management
- Support national initiatives for smart cities and e-government
- Support international efforts for promotion of sustainable space activities

GL2. Science, technology and exploration guidelines

- Develop and encourage UAE scientific and aerospace engineering professionals
- Enhance land and climate observation and support environment protection
- Support national space technology development
- Create programs to support space exploration efforts
- Embark on space programs that increase UAE's status in this field

GL3. Commercial sector guidelines

- Promote UAE products and services
- Support economic diversification and develop new markets
- Create a competitive and sustainable commercial space industry
- Promote and sustain innovation
- Promote creative entrepreneurship and commercial space projects
- Support the development of space industry standards

5 Implementation and governance

- Effective stewardship by the UAE Space Agency
- Active stakeholder involvement and coordination
- Assessment to identify gaps and opportunities
- Review and revision of the Space Policy

National Law Alignment with LTS

- The Preamble
- Article 1 – Definitions
- Article 2 – Scope of Application
- Article 3 – Competences of the Agency
- **Article 4 – Authorization of Space Activities**
- **Article 5 – Liability**
- **Article 6 – Space debris mitigation**
- **Article 7 – National registry of Space objects and international registration**
- **Article 8 – Manned Spaceflight**
- Article 9 – Remote sensing data management
- Article 10 – Investigation of space-related accidents and incidents
- Article 11 – Exploration and Utilization of Space Resources
- Article 12 – Collaboration with Governmental entities
- Article 13 – Fees
- Article 14 – Fines and Sanctions
- Article 15 – Transitional provisions
- Article 16 – Final provisions



National Regs Alignment with LTS

- ❖ **The Regulations complements the Space Activities Law and detailing different space regulatory aspects**
- ❖ **Five basic Regulations were identified to start regulating Space Activities:**

i. Space Object Registration

- Set out the legislations and procedures to register a UAE Space Object in the National Registry and the UN International Registry

ii. Accident and Incident Investigation

- Set out the legislations and procedures in case of occurrence of Space related Accidents and Incidents in which the UAE is an incitant or affected 3rd party

iii. Authorization of Space Activities

- Set out the different types of Authorizations, terms and conditions and procedure to obtain a Space Activity Authorization

iv. Manned Space Flights

- Set out terms, conditions and procedures required to commence orbital and sub-orbital Space Flights with human on board

v. Auditing Framework

- Set out the legislations and procedures of Auditing operators on compliance to terms, conditions and regulations issued by the UAE-SA



- Member States collaborate and contribute more to the completion of the LTS Guidelines**
- More involvement of the non-gov in the development of the LTS**
- Start reporting on the implantations of the agreed ones**
- Share experiences and knowledge on how to implement the LTS**
- Continue to share progress on LTS and consult with other relevant UN organizations**





THANK YOU!!

