International Institutions relating to the Telecom Sector

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Outline

- ITU
- ITSO
- INTELSAT
- INMARSAT
- INTERSPUTNIK
- EUTELSAT
- APSCC
- UNIDROIT
- WTO
- Conclusion

ITU History

- Originally founded in 1865 to promote cooperation among international telegraphy networks of the day, ITU predates many other standardization bodies and its long and distinguished history contains a number of important 'firsts', such as –
  - the standardization of the use of the Morse code
  - the world's first radiocommunication and
  - fixed telecommunication networks.

International Telecommunication Union (ITU)

- The International Telecommunication Union (ITU), founded in 1865 is the United Nations specialized agency for information and communication technologies (ICTs)
- ITU is committed to connecting all the People across the Globe, wherever they live and whatever their means.
- ITU Protects everyone's right to communicate.
- To facilitate international connectivity in communications networks, ITU
  - allocates global radio spectrum and satellite orbits,
  - develop the technical standards that ensure networks and technologies seamlessly interconnect, and
  - strive to improve access to ICTs to underserved communities worldwide.

ITU Instruments

Instruments

- **Constitution - comprises constitutional provisions less likely to be amended by successive plenipotentiary conferences**
- **Convention - contains other governmental provisions more likely to change.**
- **Radio Regulations - Intergovernmental Treaty governing the use of spectrum/orbit resources by administrations - Manages the radio-frequency spectrum and satellite orbits**
- **Rules of Procedures**
- **Recommendations**

ITU CONSTITUTION - Art.1.2

- ITU shall effect
  - allocation of bands of the radio-frequency spectrum, the allotment of radio frequencies and
  - the registration of radiofrequency assignments and, for space services, of any associated orbital position in the geostationary-satellite orbit or of any associated characteristics of satellites in other orbits,
  - in order to avoid harmful interference between radio stations of different countries.

ITU Constitution Art-44.

- **Use of the Radio-Frequency Spectrum and of the Geostationary-Satellite and Other Satellite Orbits**

1. **Member States shall endeavour to limit the number of frequencies and the spectrum used to the minimum essential to provide in a satisfactory manner the necessary services. To that end, they shall endeavour to apply the latest technical advances as soon as possible.**
2. **In using frequency bands for radio services, Member States shall bear in mind that radio frequencies and any associated orbits, including the geostationary-satellite orbit, are limited natural resources and that they must be used rationally, efficiently and economically, in conformity with the provisions of the Radio Regulations, so that countries or groups of countries may have equitable access to those orbits and frequencies, taking into account the special needs of the developing countries and the geographical situation of particular countries.**

Radio frequencies & satellite orbits are limited natural resources – Rational, Economical and Efficient Use - Equitable Access

Membership

- The membership of the ITU is crucial to understanding both its strengths and weaknesses.
- There are two types of memberships –
  - one the fundamental membership of the ITU as such, which is open only to states,
  - the other being membership of individual elements of the ITU, which is open to entities authorised by their individual home states to be admitted as such lesser members.
  - In ITU parlance a distinction is made between 'capital-M Members, and 'small-m' members.

ITU Sectors

- ITU has three main areas of activity organized in ‘Sectors’ which work through conferences and meetings.
  - RADIOCOMMUNICATIONS (ITU-R)
  - STANDARDIZATION (ITU-S)
  - DEVELOPMENT (ITU-D)

ITU-R

"Manages the radio-frequency spectrum and satellite orbits"

- **ITU's Radiocommunication Sector (ITU-R) coordinates the vast and growing range of radiocommunication services, as well as the international management of the radio-frequency spectrum and satellite orbits, which are limited natural resources.**
- **Through ITU -Radio Conferences and Study Group activities, the requirements of limited resources of the increasing number of players from both Government and industry are regulated.**

ITU- Standardization

- Provides a neutral platform where governments and the private sector develop international standards covering all fields of telecommunications.
- Defines tariff and accounting principles for international telecommunication services.

- **ITU standards (called Recommendations) are fundamental to the operation of today's ICT networks.**
- **Hundreds of ITU standards allow systems to work – locally and globally, for Internet access, transport protocols, voice and video compression, home networking, and myriad other aspects of ICTs.**
  - **For instance, the Emmy award-winning standard ITU-T H.264 is now one of the most popular standards for video compression.**
- **In a typical year, ITU will produce or revise upwards of 150 standards covering everything from core network functionality to next-generation services such as IPTV.**

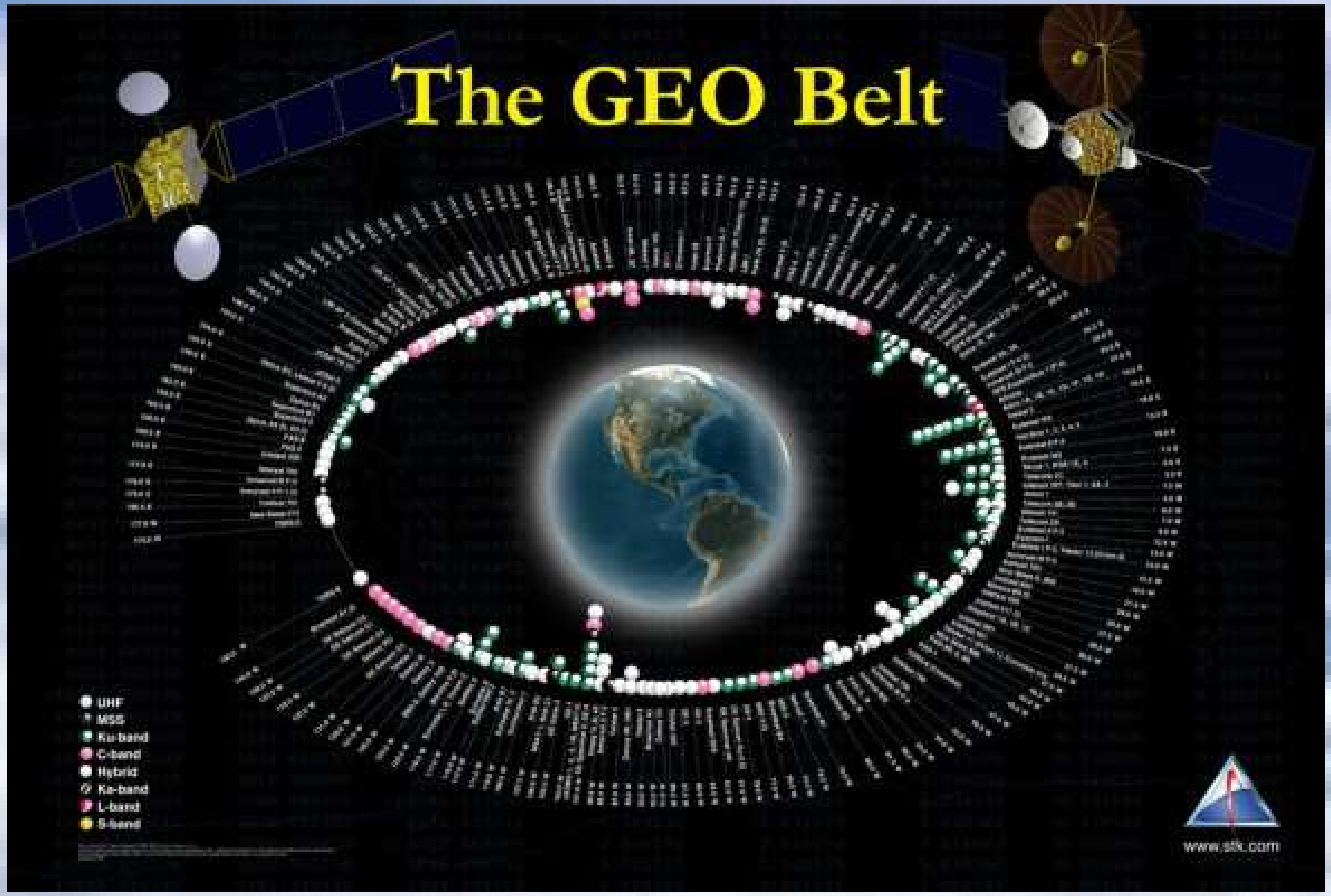
ITU- Development

Fostering international cooperation and solidarity in the delivery of technical assistance and in the creation, development and improvement of telecommunication/ICT equipment and networks in developing countries.

- **ITU champions a number of major initiatives which encompass ITU's internationally-accorded mandate to 'bridge the digital divide', such as its ITU Connect events or Connect a School, Connect a Community.**
- **ITU's Telecommunication Development Sector (ITU-D) offers programmes to support the users interests in emerging markets, demonstrating global ICT leadership, learning how to put good policy into practice, or pursuing their mandate for corporate social responsibility.**

ITU - Space Services Department (SSD)

- The Space Services Department (SSD) is responsible for coordination and recording procedures for space systems and earth stations.
- The Department handles capture, processing and publication of data and carries out examination of frequency assignment notices submitted by administrations for inclusion in the formal coordination procedures or recording in the Master International Frequency Register (MIFR).
- The Department is also responsible for managing the procedures for space related assignment or allotment plans of the ITU and for provision of assistance to administrations on all of the above issues.


The GEO Belt
UHF
MSS
Ku-band
C-band
Hybrid
Ka-band
L-band
S-band
www.stk.com

World Radiocommunication Conferences (WRC)

- World Radiocommunication Conferences (WRC) are held every three to four years.
- Under the terms of the ITU Constitution, a WRC can:
  - revise the Radio Regulations and any associated Frequency assignment and allotment Plans;
  - address any radiocommunication matter of worldwide character;
  - instruct the Radio Regulations Board and the Radiocommunication Bureau, and review their activities;
  - determine Questions for study by the Radiocommunication Assembly and its Study Groups in preparation for future Radiocommunication Conferences.
- The general scope of the agenda of world radiocommunication conferences is established four to six years in advance, with the final agenda set by the ITU Council two years before the conference, with the concurrence of a majority of Member States.

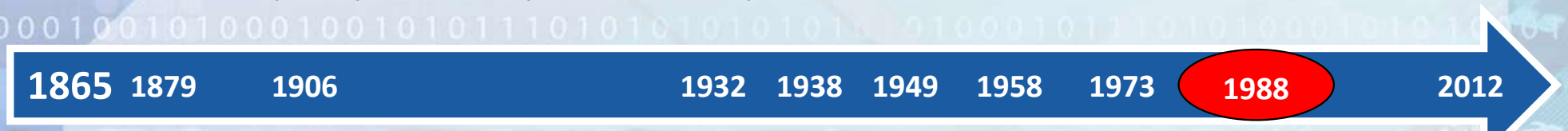
ITU- Radio Regulations

"Manages the radio-frequency spectrum and satellite orbits"

- Intergovernmental Treaty governing the use of spectrum/orbit resources by administrations
- Define the rights and obligations of Member States in respect of the use of these resources
- Recording of a frequency assignment in the Master Register (MIFR) provides international recognition
- Updated every 3-4 years by World Radiocommunication Conference (WRC)
- Complemented by Rules of Procedure, revised by Radio Regulations Board (RRB)

Background 1/2

The International Telecommunication Regulations (ITRs) define the general principles for the provision and operation of international telecommunications



Regulations for international service of the Telegraph Convention
(1865- last modified in 1973)

Telegraph Regulations
(1932 - last modified in 1973)

Telephone Regulations
(1932 - last modified in 1973)

ITRs
(came into force in 1990)

Radio Regulations
(first version 1906 – last modified in 2007)

ITRs succeeded the Telegraph Regulations (1973) and Telephone Regulations (1973) in a new treaty adopted at WATTC-88 (Melbourne)

Background 2/2

- The current version of ITRs was adopted in 1988 in Melbourne, Australia, by WATTC-88
- ITRs came into force in 1990, and are one of the four treaties of ITU.

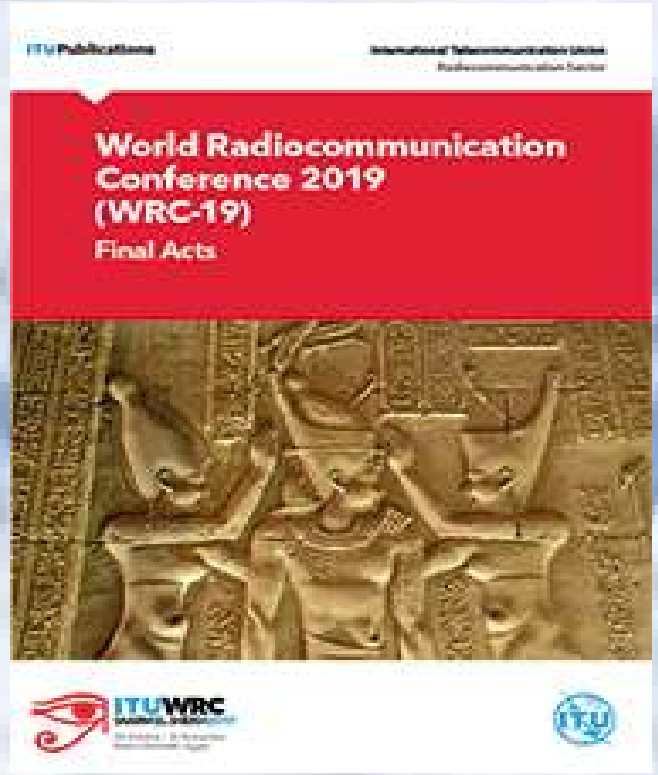
Constitution	Convention	Radio Regulations	ITRs

- Signed by 178 countries, ITRs are a truly global treaty applied around the world

WRC- 2019

- **World Radiocommunication Conference 2019 (WRC-19), was held at Sharm el-Sheikh, Egypt, during 28 October to 22 November 2019.**

- The Final Acts WRC-19 constitute a record of the decisions taken at the World Radiocommunication Conference 2019 (WRC-19).
- It comprises both the new and revised provisions of the Radio Regulations, including all Appendices, and the new and revised Resolutions and Recommendations approved by the Conference.
- Statements made by Member States at the time of signing the Final Acts are also included.



Available at: https://www.itu.int/pub/R-ACT-WRC.14-2019/en

ITU's Regional Office in India

- On March 03, 2022, the Telecom Minister of India the and the Secretary-General of International Telecommunication Union (ITU) signed a pact virtually to establish an area office and innovation centre of the ITU in New Delhi.
- The setting up of the area office is expected to provide greater access and engagement to India and South Asian countries in global policy and standard formation in the field of telecommunication.
- It is also expected that this Office would provide opportunities for the start-ups and talents of India to develop and contribute more to telecom technology and make sure that our specific needs are reflected in the standards which are set up for telecommunications technologies

- Source: https://economictimes.indiatimes.com/industry/telecom/telecom-news/un-telecom-body-itu-to-open-area-office-for-south-asia-in-new-delhi/articleshow/89978390.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst March 04, 2022

ITSO

Source: https://itso.int/

ITSO

- The International Telecommunications Satellite Organization was originally established in 1973 with 149-member states, that incorporates the principle set forth in Resolution 1721 (XVI) of the General Assembly of the United Nations, which established that communication by means of satellite should be available to the nations of the world as soon as practicable on a global and non-discriminatory basis.
- The International Telecommunications Satellite Organization resulted from the efforts of a group of nations to join the United States in 1964 to establish a global communications satellite system.
- It also incorporates the principle embedded in the “Outer Space Treaty,” which states that outer space shall be used for the benefit and in the interest of all countries.

Missions

- **1965: Intelsat I Launch**
  - **Early Bird (Intelsat I) is launched** into synchronous orbit.
  - This is the world's first commercial communications satellite and "live via satellite" is born.
- **1967: Intelsat Transmits the First Live Global TV Broadcast**
  - Intelsat satellites carries the first-ever live international video broadcast, the TV special "Our World

ITSO Restructuring

- **ITSO was restructured in 2001, which led to the creation of a private entity, Intelsat Ltd., and to the continuation of the intergovernmental organization with a new acronym (ITSO).**
- ITSO´s mission is to monitor the performance of Intelsat's public service obligations and to safeguard he Parties' Common Heritage..
- Since its establishment, the Organization has proved to be an efficient catalyst for global cooperation in satellite communications. It has promoted cross-border flows of information that are vital to business, trade and peace, and it has been instrumental in linking the developing countries to the global economy and enhancing the competitiveness of their economies.

ITSO

- **ITSO has succeeded in providing high-quality and reliable space segment capacity for public telecommunications services, including telephony, data, video and Internet connectivity, to more than 200 countries and territories, no matter their location, size or level of development. The Organization also has inspired the emergence of dozens of participants at the national, regional and international level in the satellite industry, which today is worth more than US $100 billion.**
- **ITSO has been involved in the work of the Broadband Commission* since 2010.**
- **Upon invitation, in July 2017 the new Director General of ITSO became a new commissioner and has been contributing to the work of the Broadband Commission.**

(* The ITU and UNESCO set up the Broadband Commission in May 2010 for Digital Development in response to UN Secretary-General Ban Ki-moon's call to step-up UN efforts to meet the Millennium Development Goals (MDGs).

ITSO- Mission & Roles

- The mission of ITSO, as set forth in Article III of the ITSO Agreement, is to ensure, through the Public Service Agreement (PSA), that Intelsat provides, on a commercial basis, international public telecommunications services, in order to ensure the performance of the three Core Principles identified in the ITSO Agreement, namely (i) to maintain global connectivity and global coverage;
- (ii) to serve its lifeline connectivity customers; and
- (iii) to provide non-discriminatory access to the Intelsat system.
- Additionally, consistent with the mandate provided by Article X(j) of the ITSO Agreement, ITSO shall consider all issues related to the Parties' Common Heritage.

ITSO- Mission & Roles

- The Core Principles of the Organization include:
- Maintaining global connectivity and global coverage for any country or territory that desires to connect with any other country or territory within and between the five regions of America, Western Europe, Eastern Europe, Africa and Asia.
- Providing public telecommunications services, including capacity and price protection guarantees, to customers identified as, and connecting with, “Lifeline Connectivity Obligation” (‘LCO’) customers.
- Providing domestic public telecommunications services between areas separated by geographic areas not under the jurisdiction of the State concerned, between areas separated by the high seas, or between areas that are not linked by any terrestrial facilities and which are separated by natural barriers of such an exceptional nature that they impede the establishment of terrestrial facilities.
- Ensuring non-discriminatory access to Intelsat, Ltd.’s communications system.

ITSO: 149 MEMBERS

INTELSAT

Source: https://www.intelsat.com/
and https://itso.int/

INTELSAT

- ITSO was restructured in 2001, after 37 years as an inter governmental organisation, which led to the creation of a private entity, Intelsat Ltd.
- Upon restructuring, ITSO transferred its global satellite system and the brand-name of “Intelsat,” to Intelsat, Ltd.
- Since this transfer in 2001, Intelsat has invested US$ 2.6 billion to substantially improve the global connectivity and coverage that it offers.
- Intelsat, Ltd, as a private and competitive company was originally based in Washington, DC.
- On 15 December 2009, Intelsat, Ltd. changed its domicile to Luxembourg and the company is now known as Intelsat S.A.

Intelsat Structure

- The corporate structure of Intelsat, Ltd. includes several subsidiaries established under the laws of various countries. Intelsat Global Service, established under U.S. law, is located in Washington, DC, and employs the majority of the 800 staff.
- The United States and United Kingdom were the two countries selected by the Organization to manage licensing issues.
  - The United States is responsible for licensing the launch and operation of satellites for “Fixed Satellite Services” (“FSS”) in C- and Ku- bands, while the United Kingdom is responsible for “Broadcasting Satellite Services” (“BSS”) and FSS in Ka-bands.
  - Within their responsibility as the notifying administrations of Intelsat, Ltd., the United States and the United Kingdom work with the Director General on potential activities to expand access to lifeline countries and to maintain global connectivity and service to these countries.

INTELSAT Growth

- As a result, Intelsat's global communications network, which was composed of 19 satellites in 2001, has expanded to 53 satellites through new launches and acquisitions, while Intelsat simultaneously has expanded its terrestrial facilities, including teleports, points of presence and fiber connectivity.

INMARSAT

Source:
https://www.inmarsat.com/en/index.html

INMARSAT

- INMARSAT was set up in 1979 by the International Maritime Organization (IMO) to develop a satellite communications network for protecting lives at sea and it is deeply proud of its safety heritage.
- INMARSAT was the first satellite operator to meet the stringent requirements of the Global Maritime Distress and Safety System (GMDSS) and International Civil Aviation Organization (ICAO) for global safety communications.

INMARSAT

- **Objectives:**
  - Serve **Aviation, Maritime, Government** and **Enterprise** markets with an unparalled portfolio of services and solutions.
- **Customers range from airlines and shipping fleet operators to the military and aid agencies, and a host of commercial enterprises, from mining and logistics to agritech.**
- **Commonly shared factor is the need for highly reliable connectivity, no matter where they are.**

INMARSAT - Aviation

- Solutions:
  - In-Flight Wi-Fi, Airline Operations & Maintenance, Safety, Business& General, UAVs
- Services:
  - GX Aviation, European Aviation Network, SB-S, Jet ConneX, Classic Aero, Swift Broadband

INMARSAT- Maritime

- **Focus On: Merchant, Offshore and Energy, Fishing, Yachting, Passenger**
- **Services: Fleet Xpress, Fleet Broadband, Fleet One, Fleet LTE, Fleet Care, Fleet Connect, Fleet Data, Fleet Safety, Fleet Mail, Fleet Secure, Fleet Hotspot, Crew Xpress, Inmarsat C, Voice Services, AmosConnect**
- **Solutions: Crew welfare, Digital Solutions, Safety, Cyber Security, Sustainable Fishing**

INMARSAT- Government

- Focus on: Air, Land, Sea, Strategic Programmes, US Government
- Services: GX for Government, Mil-Ka, BGAN, FleetBroadband, SwiftBroadband, IsatPhone 2, M2M, L-MAX, L-TAC, Leasing services, Managed services, US Government Services
- Solutions: Defence, ISR, Border Security, Emergency Response, Special Forces, Head of State, Civil Services, Blue Force Tracking, Safety, US Government Solutions

INMARSAT- Enterprises

- Focus on: Agriculture, Aid and NGO, Energy, Exploration and leisure, Media, Mining, Transport, Utilities
- Services: BGAN (Broadband Global Area Network), BGAN M2M, IsatData Pro, IsatPhone 2, LoRaWAN, Leasing, Land Xpress
- Solutions : Aquaculture Management; BGAN PTT Solutions, Crop Storage Monitoring; IoT Solutions, Irrigation and Water Management, Recloser Monitoring and Control, Remote Technical Workers, Rail Telemetry and Communications, Tailings Insight

INMARSAT's ORCHESTRA Services

- In July, 2021, INMARSAT announced a new network plan that would seamlessly integrate GEO, LEO satellites and terrestrial 5G into one harmonious high performance solution, called 'ORCHESTRA'.
- It is claimed that, whether for a ship in a crowded port, an aircraft preparing to land at LAX, or a defence force deployed in a remote location, ORCHESTRA is designed to meet evolving connectivity needs in the mobility market with a service unmatched by any competitor offering, planned or in existence

Source: (https://www.inmarsat.com/en/about/technology/orchestra.html

Intersputnik

Source: https://intersputnik.int/

INTERSPUTNIK

THE INTERSPUTNIK INTERNATIONAL SYSTEM AND ORGANIZATION OF SPACE COMMUNICATIONS

- **Intersputnik is an international intergovernmental organization headquartered in Moscow.**
- **Established through Intersputnik Establishment Agreement on November 15, 1971**
- ***Objective:***
  - ***To ensure co-operation and co-ordination of efforts in the design, establishment, operation and development of the communications system the Contracting Parties set up the "Intersputnik" international organization, hereinafter referred to as the Organization. Intersputnik is an open international organization***

INTERSPUTNIK

INTERNATIONAL ORGANIZATION
OF SPACE COMMUNICATIONS

ABOUT INTERSPUTNIK

Intersputnik International Organization of Space Communications established in 1971.

Intersputnik Agreement registered with the UN Secretariat.

Full Members of Intersputnik 26 sovereign states.

25 Signatories appointed by Intersputnik Members from among national telecommunications entities and/or Telecommunications Administrations.

Governing bodies – Board (Intersputnik Members) and Operations Committee (Intersputnik Signatories).

Intersputnik Member Countries

Map | List

26 Nations

Republic of Azerbaijan, Republic of Belarus, Hungary, Federal republic of Germany, Republic India, Republic of Kazakhstan, Democratic People's Republic of Korea, Lao People's Democratic Republic, Republic of Nicaragua, Russian Federation, Syrian Arab Republic, Republic of Tajikistan, Ukraine, Islamic Republic of Afghanistan, Republic of Bulgaria, Socialist Republic of Vietnam, Georgia, Republic of Yemen, Kyrgyz Republic, Republic of Cuba, Mongolia, Republic of Poland, Romania, Federal Republic of Somalia, Turkmenistan, Czech Republic.

Intersputnik's fundamental documents

- Establishment Agreement
- Agreement on Privileges and Immunities
- Headquarters Agreement
- Operating Agreement
- Budapest Convention
- Declaration (UN treaties on outer space)

INTERSPUTNIK

INTERNATIONAL ORGANIZATION
OF SPACE COMMUNICATIONS

INTERSPUTNIK'S STRUCTURE

Board
(Governments
of Member Countries)

- Definition of the general policy and long-term goals;
- Making sure that the Organization's activity complies with the purposes and principles of the UN Charter;
- Decision-making based on recommendations of the Operations Committee.

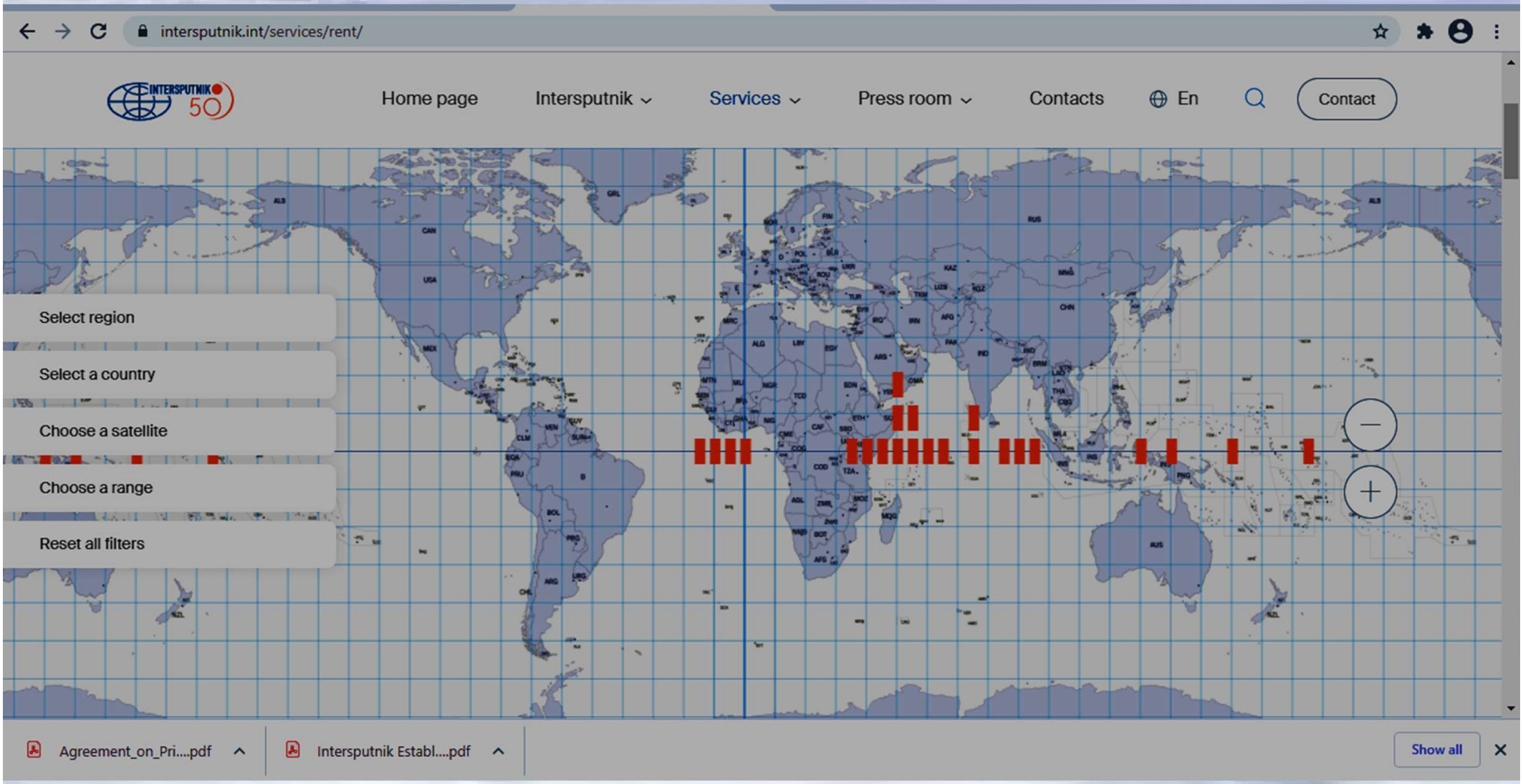
Operations Committee
(Signatories)

- Definition of the commercial, technological and financial policy;
- Definition of the amounts of the Share Capital and dividends.

Directorate
(Director General, staff)

- Making sure that decisions of the Board and Operations Committee are fulfilled;
- Organization of the operation and development of the Intersputnik system;
- Current operations.

Intersputnik Services- Lease of satellite capacity



In cooperation with global, regional, and domestic owners/operators of satellite systems, Intersputnik offers interested customers the capacity of telecommunications satellites located in GSO from 14°W to 183°E.

EUTELSAT

EUTELSAT

- Eutelsat is born out of an ambition to build a European industry in the manufacture, launch and operation of satellites.
- The organisation first took shape in 1977 to operate the first generation of communications satellites ordered by the European Space Agency (ESA).

APSCC

- Asia-Pacific Satellite Communications Council (APSCC) is a non-profit international association representing all sectors of satellite and/or space-related industries, including private and public companies, government ministries and agencies, and academic and research entities.
- The overall objective of APSCC is to promote communications and broadcasting via satellite as well as outer space activities in the Asia-Pacific for the socio-economic and cultural welfare of the region

UNIDROIT- Cape Town Convention

- **The Cape Town Convention is a Convention made under UNIDROIT to protect the International Interests in Mobile Equipment, such as Aircraft, Rail Road and Space Assets. *[UNIDROIT- The International Institute for the Unification of Private Law]***
- **Independent Protocols were made for these mobile equipment, which are prone to cross international borders for providing services.**
- **These protocols are intended to provide financial security for the investments made by the creditors across the globe, on these mobile equipment.**

UNIDROT – Space Assets Protocol

- The Draft Protocol To The Convention On International Interests In Mobile Equipment On Matters Specific To Space Assets was adopted through a Diplomatic Conference held at Berlin during 27 Feb. - 9 Mar. 2012
- This protocol mainly relates to protections of services rendered by the communications satellites.
- Various stakeholders such as Creditor, Debtor, Service Provider, Spacecraft operations Centres could be typically located in different countries.
- While the protocol intends to provide security to the financial investments made on the space assets, it also addresses the overall interests of all the stakeholders and ensuring continuity in telecommunication services.
- India’s proposals on services from telecommunication satellites used for societal services was well taken.

WTO

- World Trade Organisation
  - Goods
  - Services
  - Intellectual Property Rights (TRIPS)
- GATS- The General Agreement on Trade in Services
  - Telecommunication Services is one of the sectors
  - Member States have to offer Cross Border Telecom Services as per their obligations as per Sectoral Trade Rules .

CONCLUSION

- Telecommunication Services are very vital for every nation for national development, governance & security
- Orbital Resources such as Orbital Slot, Spectrum & Frequency are Limited Natural Resources, which need to be used rationally and equitably by all nations.
- The role of ITU is very important and the ITU Radio Regulations are to be complied with all Telecommunication agencies / Operators/ service providers strictly.
- As the needs of telecom services grow exponentially supported by innovative technological developments in telecom sector, the Radio Regulations are deemed to match with such requirements.
- The Roles of all international institutions are very essential towards ensuring unhindered, seamless connectivity to all the users at any point of the Globe.

- ***Thank you for your kind attention!***

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