

# Building International Networks

Attendance Code:

Professor Ian Walden



1

## Introductory remarks

- Building international networks
  - satellite regulation
    - International space law
  - submarine cables
    - International law of the sea
- International telecommunications law
  - International Telecommunications Union
    - International Telecommunications Regulations
  - World Trade Organisation
    - Reference Paper

2

# SATELLITES

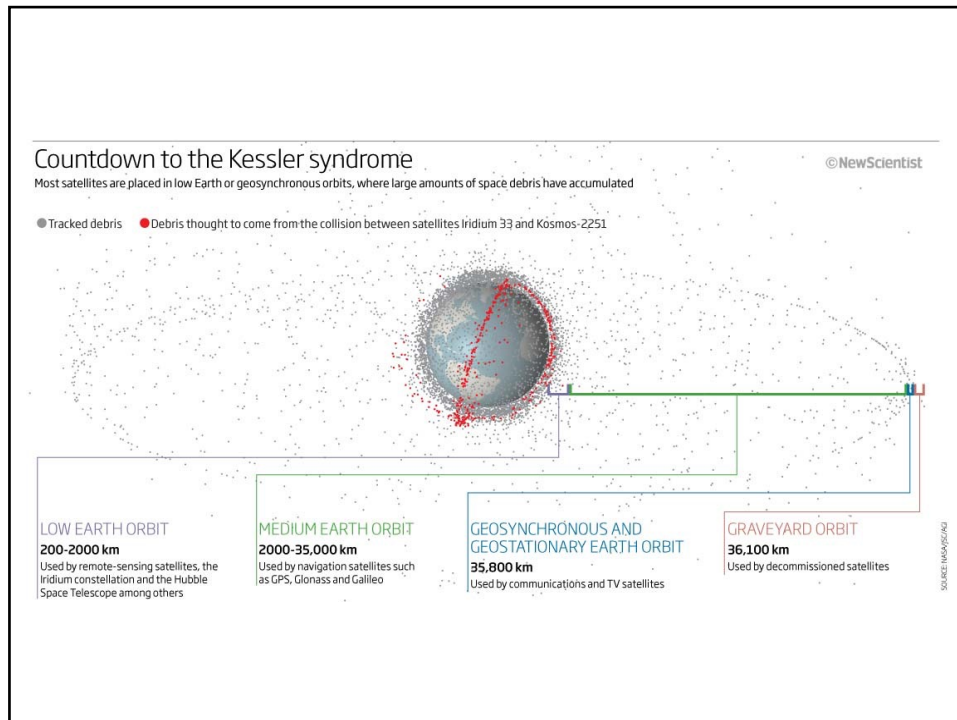
3

## Satellite Systems

- Geostationary & non-geostationary
  - telecommunications, broadcasting (DBS, DTH)
    - military, weather forecasting, remote sensing, navigation....
  - MEOs & LEOs
    - e.g. Iridium (66), Globalstar (48), O3b (16), OneWeb (630), Starlink (5500)
  - ‘uplinks’, ‘downlinks’, ‘extraplanetary links’ & ‘footprint’
- ‘earth segment’ & ‘space segment’
  - ‘orbital resource’
  - ‘landing rights’



4



5

## Satellite Regulation

- Right to launch & operate satellite
  - National regimes
    - UK: Outer Space Act 1986
  - International rules for attribution of liability
    - ‘launching state’
      - launch or procures and territory or facility for where launched
    - satellite control
      - telemetry, tracking, (monitoring) and command
- Right to use of orbital slot & spectrum
  - International band and slot allotment
    - ITU Master International Frequency Register
    - Minimise interference
  - National licensing
    - Multiple jurisdictions

6

# International Space Treaties I

- UN General Assembly declaration (1962)
  - six principles of law governing use of outer space
- 1967 Outer Space Treaty
  - Art. II: “..not subject to national appropriation...”
    - **But**, Bogota Declaration (1976): 7 equatorial states claim re: GSO
  - Art. V: inform if activities “a danger to the life or health of astronauts”
    - e.g. China notifies Secretary-General re: Starlink and China Space Station (Dec. 2021)
  - Art. VI: “..bear international responsibility for national activities in outer space...whether such activities are carried on by governmental agencies or by non-governmental entities”
  - Art. VII: “Each State Party...that launches or procures the launching of an object into outer space...and each State Party from whose territory or facility an object is launched, is internationally liable...”
  - Art. IX: Consultation obligation if activities “would cause potentially harmful interference with activities of other States”

7

# International Space Treaties II

- 1972 Convention on International Liability for Damage caused by Space Objects
  - Risks: pre-launch, launch, in-orbit, end-of-life disposal
    - e.g. FCC fined Dish Networks \$150k over failure to deorbit EchoStar-7 (Oct. 2023)
  - Damage
    - “..loss of life, personal injury or other impairment of health; or loss of or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organisations”
  - Art. II: ‘absolutely liable’ for damage on Earth surface or aircraft flight
    - e.g. Cosmos 954 (1978), Myanmar (2016)
  - Art. III: ‘fault liability’ for damage caused elsewhere, i.e. in space
    - e.g. Iridium 33 satellite & Kosmos 2251 (2009)
    - e.g. Intelsat Galaxy 15 (2010)

8

## International Space Treaties III

- ‘Space object’
  - “includes component parts...as well as its launch vehicle and parts thereof”
- State liability
  - Private entity liability through national law
- Limits of ‘fault-based’ liability?
  - e.g. force majeure, breach of duty of care, foreseeability and remoteness
- 1974 Convention on Registration of Objects Launched into Outer Space
  - jurisdiction of ‘launching state’

9

## Satellite Spectrum

- Allocation
  - ITU World Radio Conferences
    - e.g. for Earth exploration satellite services (EESS)
- Assignment
  - ITU processes
    - Unplanned (first-come-first-served)
      - Operators can file directly, no ‘licence fee’ payable
      - Economically efficient?
    - Planned
      - Member states are given a slot, channels & other technical parameters
  - European and national regimes
    - *ICO v Parliament & Council* [2010] 3 C.M.L.R. 38
    - *R(ICO Satellite Ltd) v Ofcom* [2010] EWHC 2010 (Admin)

10

# UK space law

- Outer Space Act 1986 (for overseas activities)
  - “launching or procuring the launch of a space object” & “operating a space object”
    - Not for leasing or use of transponder capacity
  - UK Space Agency: licensable activities
    - 60m above Earth
      - below ‘airspace’ and subject to Wireless Telegraphy Act 2006
    - e.g. “prevent the contamination of outer space”, “avoid interference with the activities of others”
  - Register of space objects
  - Insurance obligations
    - Indemnify government for 3<sup>rd</sup> party claims (s. 10)
      - Since 1 October 2015: from unlimited indemnity to individual risk assessment, with majority likely to be capped at €60m



11

# UK space law

- Space Industry Act 2018 (for domestic activities)
  - Space & sub-orbital activities in the UK
  - Civil Aviation Authority
    - licensable activities: ‘spaceflight’ & operation of a ‘spaceport’
  - Government power to indemnify operators



12

# ISOs

- International satellite conventions
  - e.g. Intelsat, Inmarsat, Eutelsat, Intersputnik....
  - Convention & operating agreements
    - immunity from suit for ‘official activities’
  - Privatisation, acquisitions & mergers
    - Since 2001
      - Viasat acquired Inmarsat in May 2023
      - SES acquired Intelsat in April 2024



- Multinational private consortia
  - national licences not international agreement
  - services provided direct to end users (ie. DTH)
  - access on country-by-country basis



13

# ISO Competition issues

- ‘Co-ordination procedures’
  - technical compatibility & ‘significant economic harm’
- European Union
  - *ex post* competition case law
    - e.g. *BT/Astra* (1992), OJ L20/23, 28.1.93; *Viasat/Inmarsat* (2023)
  - *ex ante* regulation
    - Commission Directive 94/46/EC & 02/77/EC, Council Resolution 1994
      - separation between regulatory & operational aspects
      - direct access to space segment capacity
- US law
  - Open-Market Reorganization for the Betterment of International Telecommunications Act of 2000 (47 USC § 761)

14

# European Space Policy

- European Union
  - TFEU, art. 189: joint initiatives & coordinate efforts
    - (2) “...excluding any harmonisation of the laws and regulations of the Member States”
- European Space Programme (2021)
  - Copernicus (Earth observation); Galileo (satellite navigation & positioning system) & EGNOS (navigation system)
- European Space Agency
  - 1975 Convention
    - 22 Member States
    - Not part of the EU, but co-operation agreement with European Commission



15

# SUBMARINE CABLES

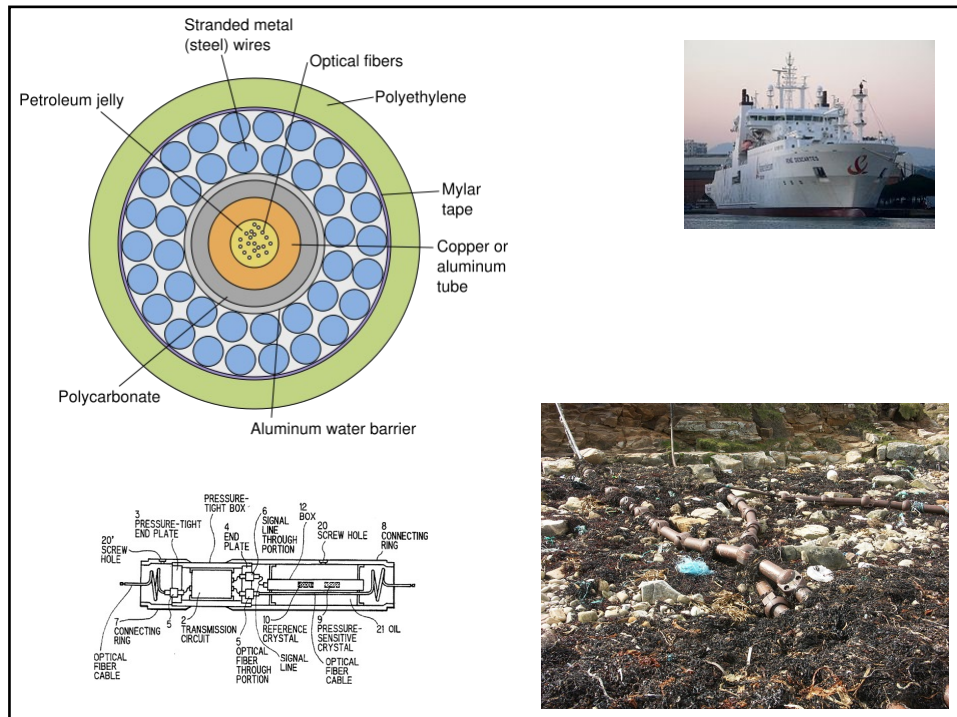
16



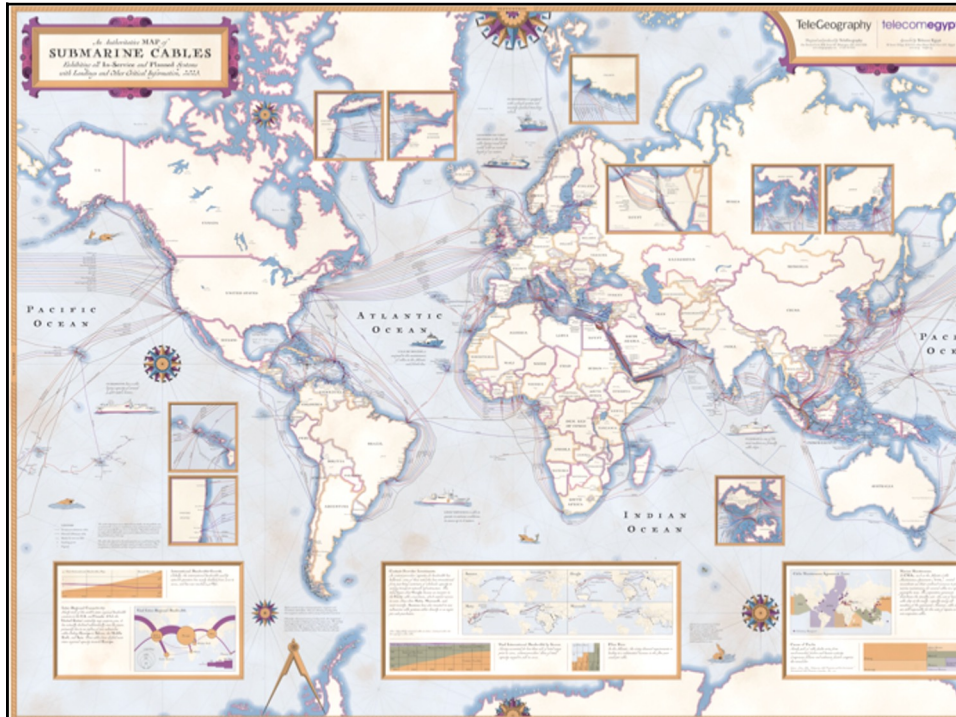
# Submarine Cables

- Since 1866....
- Carry over 95% of international traffic
  - Including connecting satellite earth stations
- Higher bandwidth, lower cost & longer lifespan
- Cable clubs & private ventures
  - e.g. ACE Cable System (Africa Coast to Europe): 17,000km
    - 20 members, including Orange & MTN
  - e.g. Tata Global Network: 700,000km; Microsoft-Facebook transatlantic cable; Nuvem (Google)
- Vulnerabilities
  - Natural & man-made (accidental & deliberate)
  - Multiplicity & redundancy

17



18



19

## Cable incidents

- December 2006
  - Earthquake results in faults to cables around Taiwan, causing disruption across Asia, including halting share trading in Singapore
- March 2007
  - Thieves steal 43km of submarine cable off the coast of Vietnam, reducing its connectivity to a single cable
- January 2008
  - 2 cables on the seabed of the eastern Mediterranean: Egypt, Saudi Arabia, UAE and Kuwait cut; India & Pakistan traffic reduced by two-thirds
- February 2008
  - 1 cable in the Persian Gulf, followed by a second 2 days later
- December 2008
  - Cables between Sicily and Tunisia are cut & one breaks between Malta and Sicily halted service in Egypt & causing severe disruption in the region
- January 2022
  - Tonga has two separate cable cuts after volcano
- **18 November 2024**
  - *'Hybrid warfare' warning after undersea cable cut between Germany and Finland*

20



21

## Laying the cable

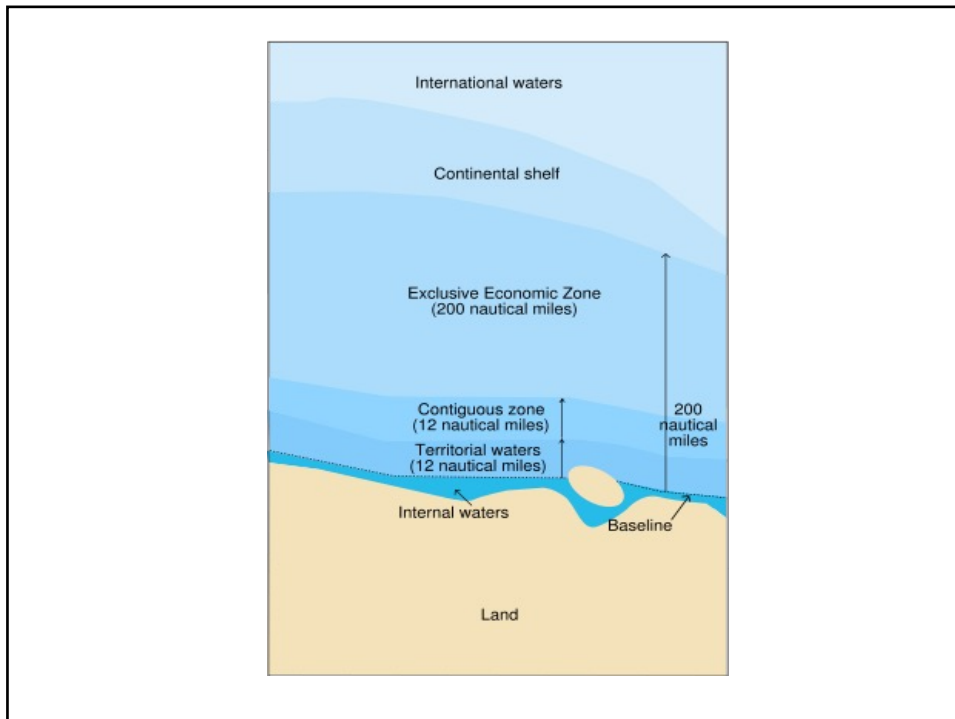
- Convention for Protection of Submarine Cables (1884)
  - Only 41 states, but customary international law
  - Submarine Telegraph Act 1885
    - Section 3: offence of interference - 5 years imprisonment
      - *Submarine Cable Company v. Dixon*, The Law Times, Reports-Vol. X, N.S. at 32 (5 March 1864)
  - International Cable Protection Committee ([www.iscpc.org](http://www.iscpc.org))
    - Recommendations: 16
- United Nations Convention on the Law of the Sea 1982
  - 169 parties, UK acceded 1997
  - Art. 297: Disputes concerning interpretation and applicability
    - *Philippines v China* (July 2016)

22

# Laying the cable

- UNCLOS
  - Internal waters
    - Fully part of a state's sovereign territory
  - Territorial waters
    - Right of 'innocent passage', but not the laying of cable
  - Continental shelf
    - Entitled to lay cable, but delineation is subject to the consent of the coastal state & due regard to existing cables (e.g. ability to repair)
  - Exclusive economic zone
    - Entitled to lay cable, but must comply with the laws of the coastal state
  - High seas
    - No sovereignty claims, so entitled to lay cable
      - 'High Seas Treat' (2023): requirement for environmental impact assessments

23



24

## Laying the cable

- National rules
  - Marine construction
    - e.g. UK: Marine and Coastal Access Act 2009, Pt 4, ‘licensable marine activity’
      - Maritime Management Organisation
      - Licence exempt outside UK’s territorial waters
      - Environmental protection, human health & non-interference
  - Protection zones
    - Mile on each side (accidental v malicious incidents)
    - e.g. Australia (2005), New Zealand (1996), Indonesia (2002)
  - Planning permission
    - e.g. building facilities for cable landing stations, interconnection and repeater equipment



25

## Submarine Cables II

- Provisioning of capacity
  - Competition concerns
    - e.g. *Cityhook Ltd v OFT and ors* [2007] CAT 18
      - re: collective boycott and wayleave fees
  - Indefeasible Rights of Use (IRUs) & International Private Leased Circuits (IPLCs)
- National security concerns
  - US Executive Order *on Preventing Access to Americans’ Bulk Sensitive Personal Data and United States Government-Related Data by Countries of Concern* (February 2024)
  - European Commission Recommendation (draft) *on Secure and Resilient Submarine Cable Infrastructures*, C(2024) 1181/3 (February 2024)

26

## Submarine Cables II

- Operation of a cable landing station
  - Provision of power to amplifiers
    - e.g. 148 on a transatlantic cable
  - 'Backhaul' circuits to a terrestrial POP
  - Access issue under Directive 02/19/EC
    - ECOWAS 'Regulation on Conditions for Access to Submarine Cable Landing Stations' (2011)

27

Concluding remarks

28