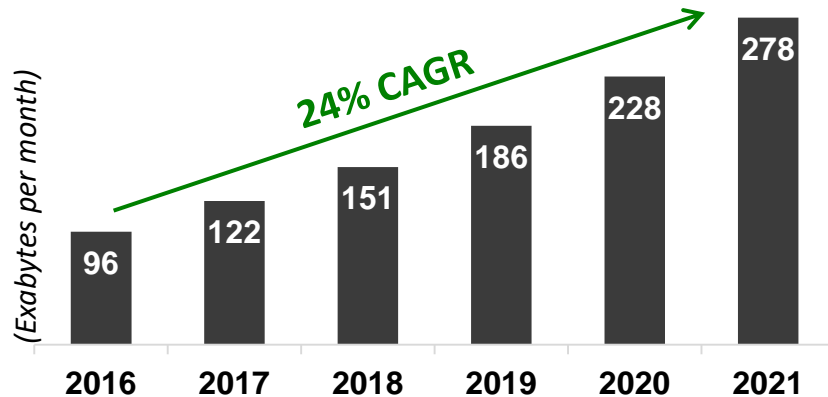# Session 7: Satellite Service Licensing Trends
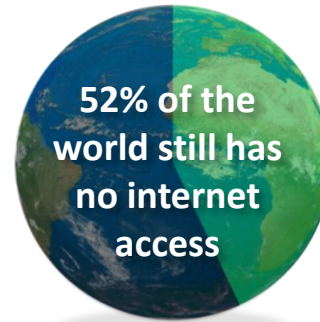## Regulatory "Best Practices" for Space-based Broadband

Presented by: Dr Tony Azzarelli, VP Global Spectrum Licensing Affairs (OneWeb)
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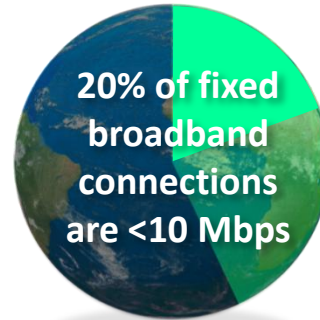# Satellite Technology Provides the Needed Connectivity

- Continued and increasing demand for connectivity

- Growth driven by new applications such as Autonomous Cars, Virtual Reality, Artificial Intelligence

24% CAGR

Bar chart (Exabytes per month):
- 2016: 96
- 2017: 122
- 2018: 151
- 2019: 186
- 2020: 228
- 2021: 278

(Exabytes per month)

Sources: Cisco VNI Global IP Traffic Forecast, 2016-2021

52% of the world still has no internet access

Terrestrial solutions cannot reach everybody economically...

20% of fixed broadband connections are <10 Mbps

...and the ones that do are not fast enough.

Source: ITU

Satellite Industry Transforming to Meet Increasing Demand

GLOBAL SATELLITE COALITION

Growing Demand for Satellite	+	Cost Per Bit Decreasing	→	Operators Investing in High-Throughput Capacity

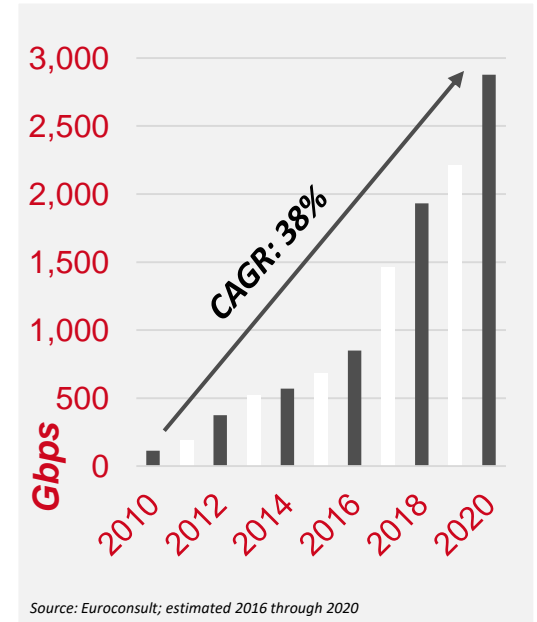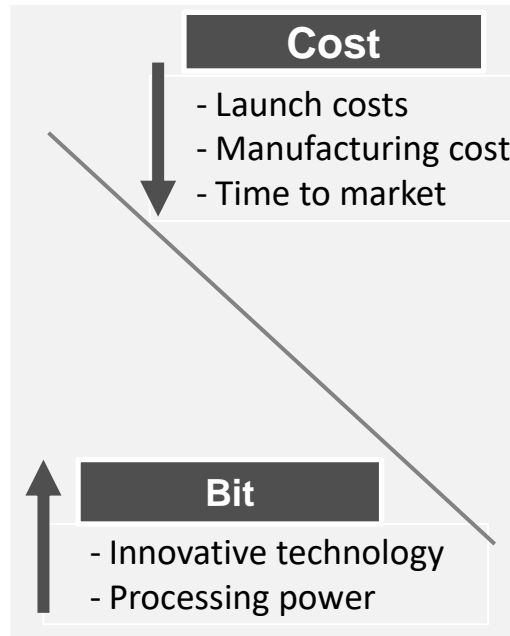🌐 **Mobility:** Provides broadband experience anywhere for passengers and crew

✈️🚆 **Broadband:** Experience and price competitive with wireline; ideal for hard to reach regions

📶 **Backhaul:** Extends networks, offloads congestion, and price competitive with microwave

💼 **Enterprise:** In-office broadband experience in remote locations

Cost
- Launch costs
- Manufacturing cost
- Time to market

Bit
- Innovative technology
- Processing power

CAGR: 38%

3,000
2,500
2,000
1,500
1,000
500
0

Gbps

2010 2012 2014 2016 2018 2020

Source: Euroconsult; estimated 2016 through 2020

SatCom Barriers to Entry

- **Protectionism:** Foreign vs National infrastructure

- **High import taxes + duties:** on Satellite Equipment

- **High license fees:** for Spectrum Access and Installations

- **Gateway obligations:** Added Costs and Complexity

Existing Best Practice

- Service provider required a simple service license

- Fulfill few simple conditions

- Annual Cost Recovery fees

- Blanket Licensing for satellite terminals

Benefits of NGSO Technologies – global capacity and low latency

- **Satellite has a key role in a multi-network broadband ecosystem**

- **True ubiquitous geographic universal service**

- **Effectively reach unserved areas with flexibility**

- **Overcome geographic challenges to provide:**
  - Connectivity immediately following emergencies and disasters
  - Services to end users
  - Data capacity to ISPs and enterprise customers
  - Backhaul capacity for mobile systems in remote or over-saturated areas

- **Low latency and high capacity make NGSOs the ideal option for real-time applications**

Spectrum Access requires Certainty and Fairness

- **Spectrum Certainty**
  - Accept internationally recognized standards to reduce harmful interference.
  - Follow internationally-accepted spectrum processes and frequency allocations.
  - Don't differentiate between GSO and non-GSO spectrum use, the two can share.

- **Embrace "Open Sky" and "reciprocity" policies**
  - **"Open Skies"** policies allow domestic licensees to choose the best backbone infrastructure to serve their users—simple registration is often sufficient.
  - **"Landing rights"** or other domestic licenses result in diminished choices, insufficient capacity, and higher prices to end users.

Licensing Policies should facilitate efficient rollout and coexistence

■ **Embrace Innovation and Innovative Technologies**
- Competitive prices for end users result from policies that allow deployment of the most efficient and affordable services, regardless of architecture model.

■ **Abolish protectionism and embrace competition**
- It is detrimental to innovation and deployment to offer an advantage to only domestic operators.

■ **Embrace Equipment Blanket Licensing, Exemptions from Licensing and Free-Circulation**
- Remove the need of **service licensing** and embrace **"registration"** to reduce costs to end users.
- As new satellite systems begin to provide service, blanket licensing allows for scaled solutions.
- Look to the recent ECC Decisions on streamlined licensing of Ku-band satellite earth stations.

Licensing Timelines and Processes require transparency and harmony

- **License Initial Application Process**

    - Allow online license applications, which ease burden, provides easy tracking and saves time.

    - Allow digital signatures which improve time efficiency.

- **License Approval Timeline**

    - Predictability of application review timeframe helps operators plan for deployment.

    - Consider adoption of a default approval of application if regulator does not respond within certain timeframe.

- **International and Regional Harmonization**

    - Harmonised spectrum access and certainty are essential for satellite systems which need to develop, procure and launch satellites and their equipment.

    - Satellites systems require substantial investment, many years of design, procurement and manufacturing before their deployment.

Administrative Requirements and Fees should be reasonable

■ **Equipment Type Approval (Homologation)**
- Self-certification by manufacturers is an acceptable practice when a recognized standard exist (e.g., ETSI), or as well as in conjunction with approval from a reputable institution.

■ **Fees**
- Costs of licensing should be limited to recovery of the regulator's administrative costs to process the application and maintain the license.
- For NGSO systems with multiple antennas at a "gateway" site, licensing should be administered on a "per site" basis and not a "per antenna" basis.
- Spectrum fees on a "per MHz" can be extremely high and discourage innovation —e.g., use of large bandwidths by new high-capacity services should not be punished, given the strong benefits such services bring to end users.

Key aspects include

1. **Technology Neutrality:** local entities choose infrastructure system based on own merits.

2. **Transparency & non discrimination:** rules are streamlined and cost based.

3. **Smart provision of access to spectrum:** critical connectivity (e.g. BB4All, Disaster relief, eHealth or eEducation) not evaluated on economic grounds.

4. **Favour competition:** domestic and foreign operators on equal footing.

5. **Minimize local constrains:** commercial or technical presence are not imposed.

6. **Facilitate provision and use of equipment:** blanket type approval or certification, free circulation.

7. **Encourage blanket licensing:** one single entity is licensed for a large number of VSATs/Satellite terminals.

8. **Security concerns:** always have an engineering solution that is not based on having a gateway in the country.

9. **Exchange & follow best practices:** develop regionally harmonized approaches together with other regulators.

Regulation is a means to an end: helps to develop competition and serve the goal of closing "digital divide"