ENABLING ACCESS TO THE SPECTRUM & ORBIT RESOURCES

Workshop on the Efficient Use of the Orbit/Spectrum Resource,
Bangkok, 30 August 2017

eutelsat

CONTENTS

- **Access to spectrum: Agenda Item 7 of the WRC**
- Combining a pragmatic approach for new entrants
- The case for partnering
- Conclusions

ACCESS TO SPECTRUM: AGENDA ITEM 7 OF THE WRC

- **Agenda Item 7 of WRC-15**
  - ➔ a standing agenda item at WRC conferences (Resolution 86)
  - ➔ "to consider possible changes, and other options… to facilitate rational, efficient and economical use of radio frequencies and any associated orbits, including the geostationary-satellite orbit."
- **Incremental progress continues to be made to improve, rationalize and fairly apply the rules.**
- **Nevertheless it remains very difficult for a new satellite project to get the access to spectrum needed to assure its success.**
- **The regulatory framework alone will not fully solve the problem**

REALITY OF THE INTERNATIONAL REGULATORY FRAMEWORK

- **Satellite spectrum is increasingly congested**
  - ➔ And key to any satellite project,
- **While the number of satellite projects is increasing, and the demands for satellite capacity increasing even faster.**
- **ITU regulations for access to spectrum are complex by nature**
- **Need to strike a difficult balance between**
  - ➔ Equitable access (e.g. planned bands), and
  - ➔ Efficient use (e.g. unplanned bands),
- **While providing a stable environment supportive of long term investment.**

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OUR EXPERIENCE IN PLANNING A SATELLITE PROJECT…

One key point from which all else follows:

- ➔ Cost of building and operating a satellite is relatively fixed
- ➔ revenue and value of service provided varies greatly depending on how effectively the satellite can address the market demand

And one key error to avoid:

- ➔ Not usually effective to design the satellite on the basis of the presumed available orbital resources
- ➔ E.g., satellite projects based only on a national allotment may not address the full needs to meet market demand.
  - → Constraints in coverage, frequencies, power, protection
  - → Limitations in both satellite resources and market demand

ADDRESSING MARKET DEMAND – BASIC FACTORS

- **Long term design needs to address a moving/changing target**
  - → From conception to on-orbit availability of a satellite is typically at least 4-5 years, the procurement and launch on its own being three years
  - → Satellite then generally remains in service for 15 years or more
  - → Lesson: very long time scales in terms of predicting, at time of satellite design, where the market demand will be
- **Market assessments are essential to developing a viable business plan, but even this is not enough to assure a successful project:**
- **A flexible and versatile satellite design is key**
  - → To provide a mix of services to cover the full range of market demand
  - → to address opportunities as they develop

CHOOSE A FLEXIBLE SATELLITE DESIGN

What makes a flexible and versatile satellite design?

- **Provides the full range of needed satellite services**
  - → Broadcast television
    - → Contribution
    - → Direct to home
  - → Broadband connectivity
  - → Trunking and backhaul
  - → VSATs / corporate data networks
- **Over a wide addressable coverage area**
  - → Reach populations outside national boundaries (e.g. broadcast television)
  - → Capability to focus resources where demand arises (e.g. data / telecom services)

PLANNING A SATELLITE PROJECT: ORBITAL RIGHTS CONSIDERATIONS

- **Service and coverage flexibility require corresponding orbital rights**
- **Wide geographic coverage/reach is important, but the frequencies and the manner in which they can be operated are also key**
  - ➔ Power, antenna sizes
  - ➔ Ability to license a service in the target national territories
    - → For example, DTH can be provided in all Ku-bands, but, for example data or VSAT not generally possible and/or feasible in BSS bands.
  - ➔ Availability of equipment in a given frequency and for a given service.
    - → VSAT data equipment for planned bands is more expensive (App30B) and/or very difficult to supply (App30 / 30A)
  - ➔ Compatibility of service both in terms of national terrestrial usage of frequency, as well as in terms of protection / compatibility with respect to nearby satellite operations / rights
- **Orbital rights *are* a major challenge / enabler for new satellite projects**

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THE CASE FOR PARTNERING

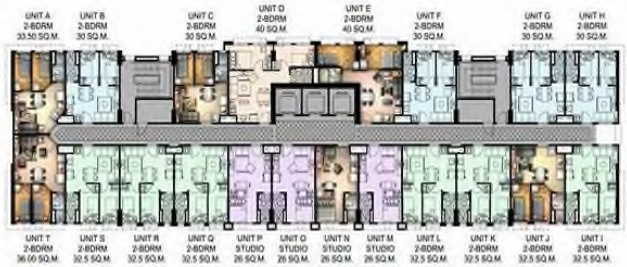
Players with complementary profiles can bring together the needed enablers, including:

- **Mix of orbital resources, including mature, coordinated networks**
- **Synergy of general satellite market experience with local access, knowledge and reach**
- **Reliability and Economy of scale on the satellite:**
  - → Lower initial investment
  - → More versatile satellite at a lower effective cost
    - → Wider range of services
    - → Larger coverage
  - → Experience with procurement process and satellite operations mitigates satellite design and implementation risk
  - → Ability to provide contingency and backup vs a single satellite scenario
- **Provides for viable opportunities for new entrants**

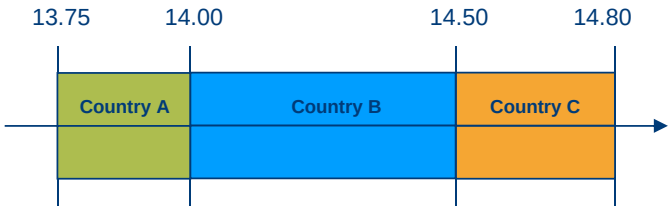
ONE EXAMPLE: THE *CONDOMINIUM SATELLITE*

- Several partners joint forces to pursue a satellite project together
- The satellite embarks several payloads, each of them being specific and fully dedicated to the needs of each partner
- Partners share the fixed costs of the satellite program
- Each partner can commercialise its payload under its own name, which is then recognised as its own spacecraft e.g. CountrySat

Real Estate condominium



Satellite condominium



COMPARING STAND-ALONE WITH CONDOMINIUM OPTION

	Stand-alone	Condominium Satellite
Satellite Design	➔ satellite technology not optimal for single average-size country coverage	➔ Satellites are well suited to cover wide areas and address many countries
Financial	➔ Fixed costs not directly proportional to payload size: launch, insurance, platform ➔ Financing can be challenging	➔ Fixed costs shared reducing cost per transponder ➔ Financing expertise with ECA (Coface, EXIM…) and Development finance institution (EBI, IFC..)
Independence	➔ Full ownership on both mission / payload and control / platform	➔ Full independence of mission achievable: dedicated payload & telecommunication operations from local teleport ➔ Platform control responsibility of one party or 3rd party ➔ Each partner commercialises its payload under own name, recognised as its own spacecraft e.g. CountrySat

Commercial	➔ New entrants exposed to fierce competition
	➔ Return on investment is a challenge in a global market
	➔ Not all frequency rights are adapted to all applications:
	  ➔ data is generally not possible in BSS
	  ➔ low cost VSAT equipments today available for unplanned Ku and Ka-band only
		➔ Enlarged coverage & target market ease commercialisation of satellite capacity
		➔ Marketing expertise can be added to the national satellite initiative via partnering with an existing operator
		➔ Wider regulatory rights allow to benefit from the right frequencies for the right applications

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CONCLUSIONS

- **Despite congestion and competition for orbital resources, there are possibilities for new entrants today**
- **Partnerships offer a route to develop economically viable satellite programmes**
- **Challenges can be addressed through a cooperative/collaborative approach to achieve the enablers to meet market demand**
  - ➔ A versatile offer covering the full range of needed satellite services
  - ➔ Wide coverage with flexible operating conditions in the appropriate frequencies
  - ➔ Market reach and regulatory market access.
  - ➔ Risk mitigations and contingency options
- **Efficient use of orbital resources ultimately is about how to best providing the needed services over a scarce resource**

Thank you

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