Satellite Regulation, Market, Technology Trends and Industry Opportunities

ITU International Satellite Symposium 2015
Da Nang, 29 September 2015

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Contents

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

Eutelsat Communications – at a glance

- **Experience:** over 30 years of satellite operations
- **Global coverage:** 39 satellites from 117° West to 172° East
- **Continued investment:** 6 further satellites to launch
- **Core broadcasting infrastructure:** 5,800 TV channels, over 274 million homes
- **Balanced service portfolio:** growing data, broadband and government markets
- **Global presence, local knowledge, technical excellence, innovation:** assured by 1,000 company experts in Europe, Africa, Asia, the Americas

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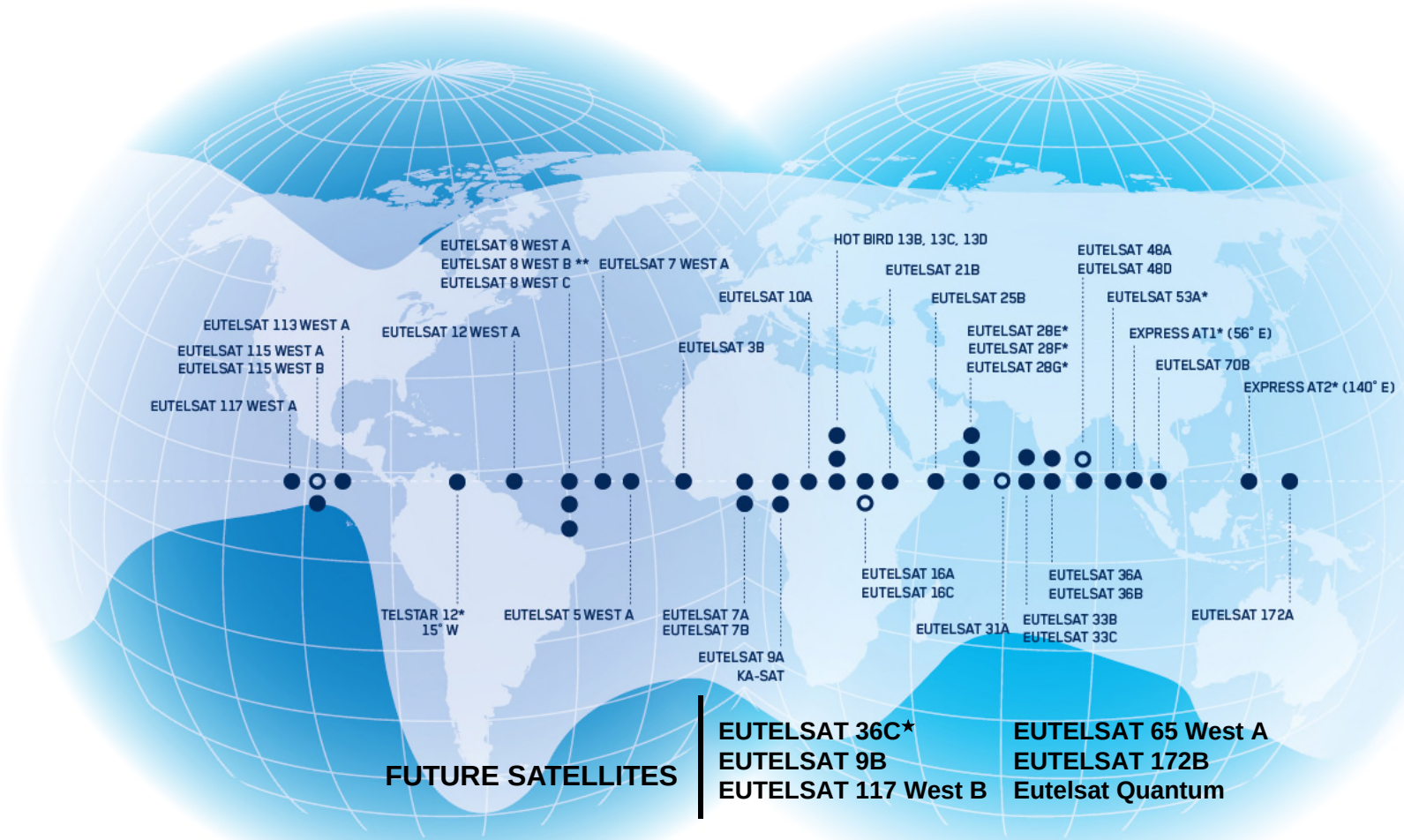
Unique range of C, Ku and Ka-band resources



FUTURE SATELLITES

EUTELSAT 36C★
EUTELSAT 9B
EUTELSAT 117 West B
EUTELSAT 65 West A
EUTELSAT 172B
Eutelsat Quantum

EUTELSAT FLEET ● **stable orbit** ○ **inclined orbit** ★ **capacity on third-party satellites**

★★ **Currently under deployment**

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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

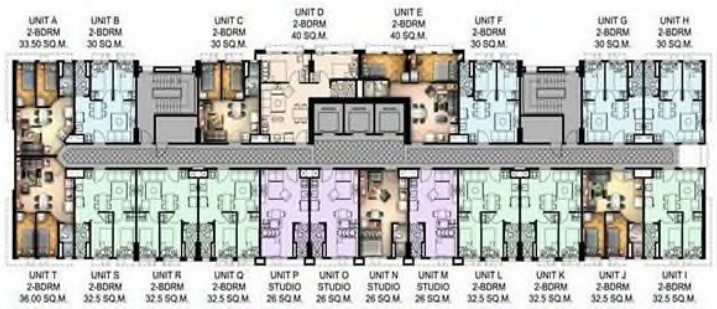
Players with complementary profiles can bring together the needed enablers, including:

- 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

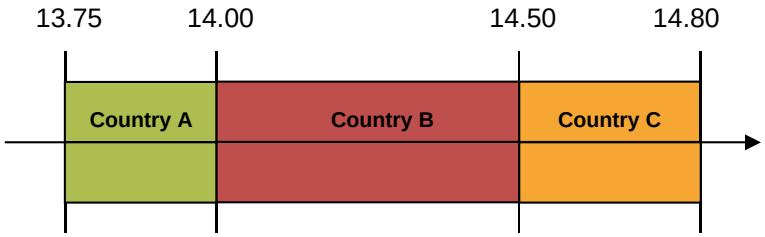
One example: the *Condominium Satellite*

- 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



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Comparing Stand-alone Satellite 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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