

# Strategic Planning and Policies for Wireless Innovation in Europe



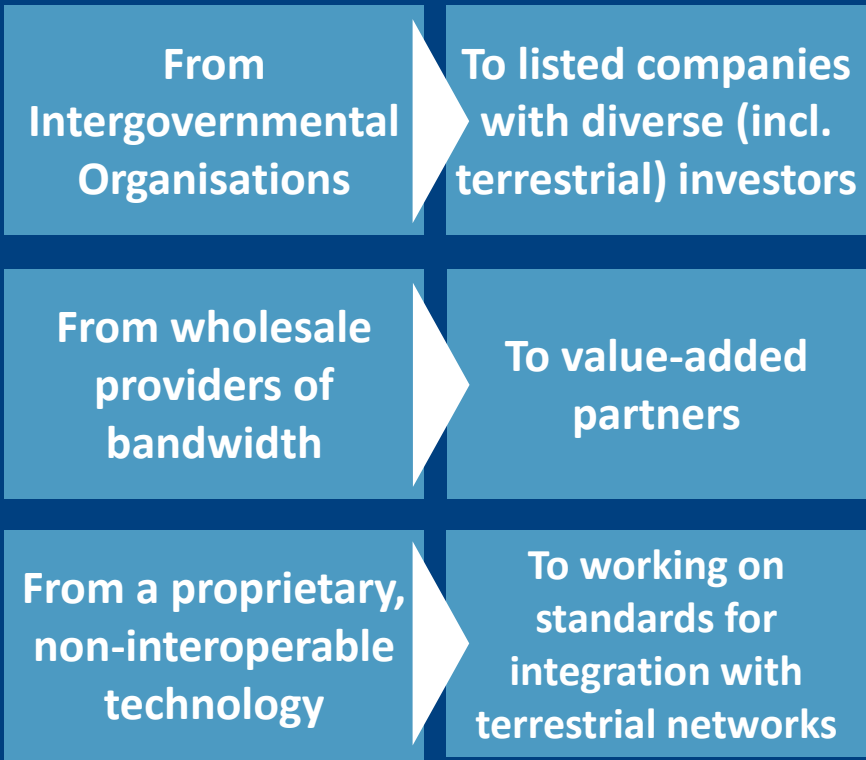
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# Evolution of Satellite Operators • Innovation Across the Value Chain



## SPACE SEGMENT








- ◆ More throughput in different orbits reduces cost per bit & increases satellite capabilities
- ◆ Increased Payload Flexibility using open 'all IP' Architecture

## GROUND SEGMENT







- ◆ Smaller, lighter, DIY antennae - no moving parts, flat panels, etc.
- ◆ Electronic steering: 'Broadband Comms on Move' (portable/vehicular/aero/maritime)








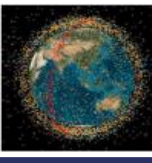
## Network Services

						
<b>Cellular Backhaul</b>	<b>Maritime Communications</b>	<b>Oil &amp; Gas</b>	<b>Aero Communications</b>	<b>Direct B2C services</b>	<b>Enterprise</b>	<b>IoT / M2M / SCADA</b>

## Media Services

					
<b>DTH TV Services</b>	<b>Cable Distribution</b>	<b>Contribution links</b>	<b>Special Events</b>	<b>Satellite News Gathering</b>	<b>Mobile Video</b>

## Government Services

					
<b>ISR / UAS</b>	<b>Secure Communications</b>	<b>Hosted Payloads</b>	<b>Disaster Recovery</b>	<b>Embassy Networks</b>	<b>Space Situational Awareness</b>

## Basic Connectivity Challenges

- **6 million EU households unconnected (3%)**
- **CIS countries present an even greater challenge**
- **EU rural speed target: 30 mbps**
- **For some countries e.g. UK a decent connection: 10 mbps**
- **FTTP cost is prohibitive e.g. Germany €2,700 per HH**
- **This problem persists with FWA**
- **There will never be a one-size-fits-all solution**



## 5G Realities in Europe / CIS

- **4G coverage remains incomplete across region**
- **5G requires even greater investment & the business case remains unclear**
- **5G deployment starting in densely populated areas**
- **Key verticals depend on uninterrupted coverage**
- **E.g. Via Baltica (highway across Latvia/Lithuania/Estonia) only possible with public support**
- **A multi-technology approach is required**



- ◆ **More Internet usage is likely to be remote (businesses / education / domestic / social)**
- ◆ **Covid shone a spotlight on the need to ensure complete coverage:**
  - ⇒ For resilience & continuity of normal life in case of such emergencies in the future
  - ⇒ To enable the flow of vital information to people no matter where they are
  - ⇒ To ensure continuity of education
  - ⇒ To enable essential services to reach those who even before the Pandemic may have been beyond the reach of connectivity

**An Inclusive Approach is more important than ever**

	21 Nisan Salı	22 Nisan Çarşamba	23 Nisan Perşembe	
				Sınıfınıza ait içerikler için tıklayın. 1. Sınıf 2. Sınıf 3. Sınıf 4. Sınıf Uyum Sınıfı Özel Eğitim
09:00	TÜRKÇE-1		Milli Mücade ve Atatürk- 23 Nisan Kutlu Olsun (Etkinlik-1)	EBA izle
09:30	MATEMATİK-1		Goometriye Giriş-Geometrik Şekiller-3	EBA izle
10:00	TÜRKÇE-2		Sağlık ve Spor - Öğretmene Saygı	EBA izle
10:30	MATEMATİK-2		Kesirler, Zaman Ölçme, Paralarımız-Zaman Ölçme-3	EBA izle
11:00	TÜRKÇE-3		Çocuk Dünyası- Dünya Çocuk Bayramı-1	EBA izle
11:30	MATEMATİK-3		Geometrik Cisimler ve Şekiller-Geometride Temel Kavramlar	EBA izle
12:00	TÜRKÇE-4		Sağlık ve Spor - Yazma Stratejilerini Uygulama	EBA izle
12:30	MATEMATİK-4		Uzunluk ve Ölçme - Uzunluk Ölçme Birimleri Arasındaki İlişkiler	EBA izle
13:00	İYEP TÜRKÇE (Tekrar)		Okuduğunu Anlama	

Source: Turksat

# Examples of Satellite Use during Covid-19 - Education

TV Broadcasting used  
for remote learning  
E.g. Turkey, Saudi Arabia

# Examples of Satellite Use during Covid-19

## - Transport of Essential Goods



Source: Inmarsat

© Chan Min Thet

**Maritime Connectivity up as crew stay on-board & use connectivity**  
**E.g. Ensuring crew welfare, streaming video, calls and other apps**



# Maintaining Safety/Essential Services during Covid-19



Source: Exelerate

Command vehicles / first responders using more connected vehicles even in fibred areas e.g. NHS Nightingale Hospital, London



RBS and NatWest now has 19 mobile banking vans on the road at any one time

UK: Royal Bank of Scotland has at least 19 mobile banking vehicles serving 357 communities & covering 7,000 miles each week around the UK



Source: Hispasat

- ⇒ **70% increase in traffic over satellite broadband connections & more new subscriptions across Western & Central Europe (e.g. Hungary, Ireland, Italy, Poland, Spain, UK)**
- ⇒ **MNOs requesting more satellite capacity to support 24/7 connectivity, not just at peak times**

- Covid-19 has driven a potentially long-lasting change in behaviour
- Urgency to push forward with multiple solutions to ensure equal access opportunities for all



**Satellite broadband solutions enabling up to 50 mbps in Europe**



**Satellite enabling community WiFi**



**Satellite backhauling mobile stations in rural areas**

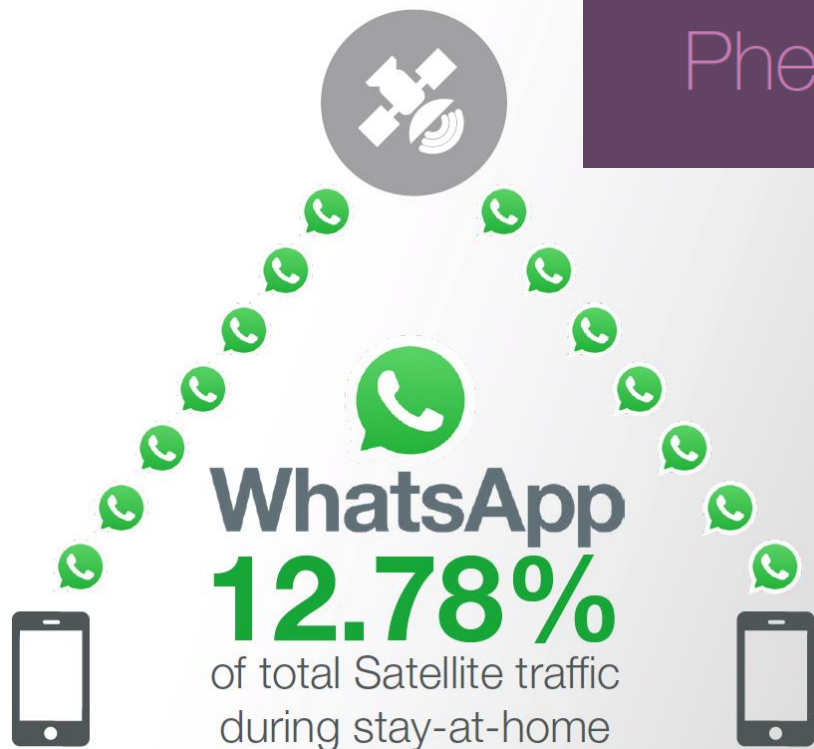
## SATELLITE TOTAL TRAFFIC SHARE TOP 10

1	YOUTUBE	16.88%
2	WHATSAPP	12.78%
3	NETLIX	9.29%
4	FACEBOOK	7.69%
5	INSTAGRAM	7.22%
6	HTTP MEDIA STREAM	6.23%
7	GOOGLE	4.98%
8	FACEBOOK VIDEO	3.40%
9	HTTP	3.35%
10	HTTP D/L	2.41%

# Satellite: Total Application Traffic Share



## The Global Internet Phenomena Report May 2020



- ⇒ **Dispels many myths about satellite technology!**
- ⇒ **Enabling same experience/use as any other BB technology**

- ⇒ **Digital Strategy & Planning post-Covid has to change**
- ⇒ **Satellite Systems are even more important going forward**
- ⇒ **Resilience must be built into planning in view of increased vulnerabilities:**
  - ❖ **Climate change: e.g. flooding, extreme weather**
  - ❖ **Political unrest & riots**
  - ❖ **Future Pandemic-type situations**
- ⇒ **Cross-sector collaboration is key to address all challenges**

**Innovation must extend beyond technology into policymaking as well**

# Thank You



20 operators



Global & Regional



CEO driven