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## **GSOA contribution GSR-23: “Regulatory and economic incentives for an inclusive sustainable digital future”**

GSOA is pleased to share an extract of the study conducted for GSOA, by VVA & LSTelcom on “The Socio-Economic Value of Satellite Communications” that we consider essential to create a framework that will foster innovation in the ecosystem.

The study assesses the socio-economic benefits of satellite communications in different use cases across the globe. Satcoms provide meaningful connectivity that complements terrestrial networks and contributes to the delivery of universal service and coverage. Terrestrial infrastructure can be severely limited by economic and physical constraints, such as the cost of deploying extensive networks, engineering to reach remote areas and unsustainable energy consumption. Satellites offer a cost-effective means to cover large swaths of the earth surface, reaching people where terrestrial networks are unavailable, generating substantial direct and indirect social and economic benefits.

As of September 2022, 2.7 billion people worldwide were not online. Satellite connectivity can significantly help reduce this digital divide and bring broadband to many more people. However, a predictable regulatory and spectrum environment is critical to achieve this goal.

**KEY FACTS:** The number of satellite broadband users is set to **double to at least 500 million people by 2030**. Communications services provided by satellites (satcoms) are set to deliver the following social and economic benefits:

- **Broadband delivery to households:** US\$52 billion in 2030 (up from US\$26 billion in 2022), as 81 million students benefit from satcom tele-education and 74 million people from satcom tele-medicine by 2030.
- **Media broadcasting:** US\$86 billion by 2030.
- **Broadband on the move:** US\$118 billion in 2030 (up from US\$13 billion in 2022), as innovative new services are deployed.
- **Cellular backhaul via satellites:** crucial technology to bring connectivity where terrestrial infrastructure cannot reach - will generate market revenues of almost **US\$30 billion by 2030**.
- **Internet of Things:** will use satcoms to connect medical wearable devices and other sensors and monitors.
- **New satellite applications:** such as inter-satellite links and direct-to-cell phone connectivity, will take off in the coming years.

With the deployment of new high-capacity satellite constellations and recent technology advances, satcoms is a vibrant and competitive market. For the purposes of this contribution, we will focus on the benefits of broadband for households, education, healthcare, emergency, and critical services.

### **1. Broadband for households, education, healthcare, emergency, and critical services**

New generations of satellite antennas of various sizes, combined with digital and software-defined spacecraft, have significantly improved the bandwidth and radio spectrum usage of satellite transmissions. Unlike rolling out fibre or other ground infrastructure, satellite broadband deployment can be straightforward and cost-effective. It can also be tailored to a variety of users’ needs. This means that even a rural village, an isolated hospital or an entire network of schools can be served in an economically efficient manner.

Each region of the world will experience an increase in the number of satellite internet users between 2022 and 2030, with for example 140% growth of satcom broadband users in Africa and Middle East by 2030 and 120% growth of satcom broadband users in Asia- Pacific by 2030. In Africa and the Middle East, the number of users will grow from 20 million to 50 million, and in Asia-Pacific from 100 million to 230 million, by 2030.

#### i. Broadband delivery to households

Satellite internet technology can deliver high speed broadband to households in unserved or underserved areas. The global socio-economic benefits of satellite broadband for households are estimated to be approximately:

- US\$26 billion in 2022
- US\$52 billion in 2030

Although in absolute values, the economic benefits are higher in the Americas and Europe and CIS, due to the greater digitalization of their economies, in relative terms Asia-Pacific, together with Africa and the Middle East, are set to see the biggest growth in benefits by 2030. However, it is crucial to foster satellite broadband for households in every region of the world in order to address the digital divide. Broadband provides access to information, online transactions,<sup>1</sup> telework, communications and entertainment, among other things, bringing essential services to everyone in the world, regardless of their related economic contribution.

#### ii. Broadband for tele-education and tele-medicine

Satellites can deliver high speed broadband to students, schools, doctors, and hospitals in underserved areas. Broadband is crucial to provide online education with an estimated 147% growth of satcom tele-education users in Africa and the Middle East by 2030 and 109% growth of satcom tele-education users in Asia-Pacific by 2030. The population of these regions is young and set to grow fast during the decade. Moreover, in Sub-Saharan Africa, 60% of the population is still not online (compared to 10% in Europe). Considering the vast landmass of the African continent and the thousands of islands in Asia-Pacific, satellite is indispensable to bridge this connectivity gap.

Satellite tele-medicine can help to provide adequate access to healthcare to people living in hard to reach and unserved areas. General practitioners in remote locations could consult specialist doctors from any other area of the world, to ensure that their patients receive the best treatments. At the same time, tele-medicine allows patients to save time and costs by receiving the medical consultation at home instead of going to the doctor's premises. In the case of contagious diseases, tele-medicine can help reduce the spread of the infection. Asia-Pacific and Africa and the Middle East are set to experience the biggest increase in the user base of satellite tele-medicine. In these regions, a substantial share of people lack adequate access to tele-medicine via terrestrial networks.

#### iii. Broadband for emergency and critical services

If cell towers and fibre cables are wiped out by extreme weather events or other disasters, cable or cellular connections will not be available until the ground infrastructure is rebuilt. This is where satcoms play a unique role: with little physical infrastructure needed, satellite services can be deployed in a very short time span. Satellites are the only means to guarantee communications in every place of the world during times of emergency. Satcoms have played a pivotal role in the response to the earthquake in Turkey and Syria in February 2023. Moreover, for time-critical services, such as online banking transactions, satellites can ensure redundancy for business continuity in case of a terrestrial infrastructure failure.

### Additional use cases

Employing satellite connections to backhaul cellular traffic provides large amounts of capacity to connect individual households and businesses across the world, especially in sparsely populated regions, islands, and other remote areas. Mobile network operators would not be able to serve these communities without satcoms: academic research suggests that using 4G with a wireless backhaul is the most cost-effective way to serve those areas. Satellite cellular backhaul market revenues are set to be approximately US\$10 billion in 2022 and reach almost US\$30 billion in 2030, when satellite backhaul will serve at least 200 million users by 2030.

Several new satellite applications are set to take off in the coming years. For example, inter-satellite links will enable the exchange of real time data between spacecraft and ground stations. Moreover, several smartphone makers have recently launched phone models capable of directly connecting to satellites - direct-to-cell satellite

connectivity. Satcoms will also support the growing Internet of Things market, connecting everything from households' appliances to tracking and remote sensing devices.

GSOA believes that citizens and users should be at the heart of policy making decisions and endorses a results-oriented approach. GSOA supports the ITU on its ongoing efforts to organise multilateral stakeholder consultations and is committed to contribute to the dialogue to help achieve the objective of finding the most beneficial solution to connect everyone everywhere.

Full report: [https://gsoasatellite.com/reports\\_and\\_studies/the-socio-economic-value-of-satellite-communications/](https://gsoasatellite.com/reports_and_studies/the-socio-economic-value-of-satellite-communications/)

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