

World Space Business Week 2024

Paris, FRANCE

Keynote Speech “ITU as a Cornerstone of Space Industry Development”

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Ladies and gentlemen,

It is an honour to address you today at the World Space Business Week 2024 in Paris. This gathering comes at a time when both space services and their regulations are advancing rapidly.

As the Radiocommunication Director of the International Telecommunication Union (ITU), I represent an institution that has been central to radio spectrum management for over 150 years.

Since 1963, when the first ITU treaty-making Conference dedicated to space systems was held, the ITU has been allocating radio spectrum and satellite orbits to space services and coordinating their use with other radiocommunication systems.

Through the World Radiocommunication Conferences (WRCs) and the work of the ITU-R Study Groups, the ITU strives to ensure that the benefits of space technology are accessible to all countries and all people.

The changes and updates to the ITU rules are only accomplished after a 4-year cycle of technical studies and the support by the 193 ITU Member States. This can be an arduous process, but it ensures a widespread acceptance for the new global rules.

In this keynote, I will highlight some key areas that form the main topics of discussion in panels this week and where the ITU has been particularly active in the past, to finally outline our direction for the future.

Let's start by discussing Earth Stations In Motion (ESIM), which is our jargon for communications on board ships, aircraft, and land vehicles. Today, ESIMs are no longer just a concept but a growing and innovative industry that enables connectivity across the globe, as demonstrated by the numerous discussions you are having these days on this topic.

The World Radiocommunication Conference of 2015 first adopted a new regulatory framework to allow earth stations in motion to communicate with space stations of the fixed-satellite service (FSS).

This was a response to the growing need for global broadband even when out of reach of terrestrial networks. Since then, the demand for high-bandwidth connectivity continued growing, and subsequent conferences have refined the regulatory framework for the operations of such stations and identified additional spectrum to support ESIM deployment.

WRC-19 and WRC-23 both approved technical, regulatory, and operational procedures for ESIMs to communicate with both geostationary and non-geostationary FSS systems.

This slide shows the frequency bands identified at previous World Radiocommunication Conferences and the frequency bands under consideration for the next WRC in 2027.

Indeed, our work has not finished...

Next WRC-27 will follow a similar direction to previous conferences and consider the identification of additional frequency bands for ESIMs in higher frequency ranges.

Another area of intense work in the ITU concerns non-geostationary orbit satellite systems.

Recent years have seen exponential growth in the number of submissions to register non-GSO frequency assignments in frequency bands allocated to the fixed and mobile satellite services.

As you know, these systems include mega-satellite constellations composed of hundreds, thousands and even tens of thousands of satellites that have the potential to bring broadband coverage and global connectivity to the most remote regions of the Planet.

This promise, however, comes with challenges, particularly in managing access to the radio spectrum sustainably and equitably, especially with increasingly crowded satellite orbits.

To prevent the warehousing of these scarce resources, the WRC-19 has defined a milestone-based approach for the deployment of non-GSO systems, agreed on specific tolerances regarding the orbital characteristics of the associated space stations, and developed coordination mechanisms and provisions to prevent harmful interference and ensure both non-GSO and GSO systems can operate effectively.

As non-GSO systems continue to grow, our frameworks will continue to evolve to address this ever-changing landscape. And indeed, a significant number of the agenda items for the upcoming WRC-27 relate to the non-GSO phenomenon.

Dear Colleagues,

Although the concept of High-Altitude Platform Stations (HAPS) is not new, and frequency bands had started to be identified for HAPS as early as 1997, only recent technological advancements have allowed for the development of stations operating in the stratosphere.

HAPS represent another opportunity to bridge the digital divide, expand broadband connectivity to remote or underserved communities, and provide connectivity during disasters using minimal infrastructure.

WRC-19 thus identified additional radio frequency bands where HAPS systems could operate under specified technical conditions.

WRC-23 followed suit and identified new bands below 2.7 GHz to support high-altitude platform stations as IMT base stations (HIBS) using the same frequencies and devices as IMT mobile networks.

The regulatory frameworks are in place and this slide shows all the spectrum made available for HAPS and HIBS. Now we are yet to see whether commercial success will follow.

Looking ahead to the World Radiocommunication Conference in 2027, one of the major discussions – as we have heard this week already – will be about direct connectivity between space stations and International Mobile Telecommunications (IMT) user equipment.

Studies already starting now will consider possible new allocations to the mobile satellite service to enable direct-to-device connectivity in the frequency ranges highlighted in the slide, taking into account the IMT frequency arrangements. This may provide alternative network resilience and connectivity to underserved communities, complementing terrestrial IMT network coverage.

As more mobile operators and satellite providers partner to bring satellite connectivity directly to smartphones, the implications on spectrum management are considerable and cannot be foregone.

Before I conclude, I want to touch on a topic that underpins our efforts related to space services: sustainability. The first ITU Space Sustainability Forum held last week in Geneva demonstrated widespread goodwill for sustainability among space actors.

Participants emphasized the need for greater exchange of information, be it to ease communication between satellite operators worldwide or to facilitate space location and ephemeris data. They also draw our attention to the need to have quick access to points of contact for flight operations, and to step up capacity building for regulators grappling with the changes in space and

satellites, to avoid a catastrophe by ignorance of accepted safety and coexistence practices in outer space. We are inviting satellite operators to share voluntarily this information for the safety of their own satellite systems.

ITU will also look to incorporate and expand the focus on space and satellite technology and best practices in our existing events like the Global Symposium of Regulators or our online training platform, the ITU Academy.

I can assure you that space sustainability will remain essential for the work of the ITU in the months and years to come in order to continue ensuring access and efficient use of the spectrum and associated orbital resources. We plan to conduct this work in line with our usual philosophy: to focus on practical, tangible achievements aiming at improving space sustainability through inclusive engagement of all relevant actors.

Ladies and gentlemen,

As you can see, the ITU is a cornerstone in the development of the space industry on Earth, but also as we look towards the Moon and beyond.

International regulations are crucial in fostering innovation while protecting existing services, as well as in enabling the efficient use of spectrum and orbital resources while ensuring all countries have equitable access to them.

As the space industry navigates through a period of rapid growth and increasing complexity, ITU's role in the global allocation of spectrum and satellite orbits, as well as in promoting sustainable practices, has become more critical than ever, and we invite your experts to participate in this important process.

Thank you very much for your attention.