Amazon contribution the 2025 Global Symposium for Regulators (GSR)
Best Practice Guidelines: *What does it take for regulators to become digital ecosystem builders?*

Telecommunications regulators play a crucial role in building 'digital ecosystems' by fostering innovation, investment, and competition in the constantly-evolving communications landscape, particularly in the satellite industry.

Before they can build a successful digital ecosystem externally, regulators must build a strong foundation internally, one built upon forward-thinking mindsets complemented with advanced technical skillsets and the use of modern digital tools. A forward-thinking regulatory mindset prioritizes principle-based regulations rather than rigid rules, thus allowing for the evolution of technology, services, and business models. For instance, regulators can establish targets for broadband coverage and speeds in a technologically-neutral approach that permits consumers and providers the flexibility to choose the specific technology that best fits local needs. By focusing on outcomes rather than prescriptive requirements, regulators can encourage innovation while still protecting consumer interests and market competitiveness.

It is also important for regulators to continuously develop technical skillsets and competencies in evolving fields like cloud computing, cybersecurity, and spectrum management. To achieve this capacity, regulators can develop channels for regular dialogue and feedback from stakeholders from industry, academia, and third parties to gain insights into emerging trends and challenges. By fostering a culture of collaboration, regulators can tap into expertise and stay ahead of technological advancements.

Telecommunications regulators can also significantly enhance their regulatory capacity by implementing advanced digital tools and technologies throughout their operations. For example, advanced data analytics tools that analyze patterns in network performance, market behavior, and consumer usage can help regulators make decisions about resource allocation and policy development. In addition, tools like end-to-end Automated Frequency Coordination systems for Wi-Fi 6E devices, which were first deployed by the Communications, Space and Technology Commission of Saudi Arabia, can open wide swaths of spectrum for new services and applications while protecting incumbent systems.

For its part, the ITU should also consistently modernize its tools to account for technological trends. For example, Recommendation ITU-R S.1503-4, [1] which models non-geostationary-satellite orbit (NGSO) for software tools that assess compliance with Article 22 of the Radio Regulations, was last updated in 2018. By relying upon the antiquated algorithm in S.1503, the ITU cannot accurately predict satellite positions or account for realistic modeling of advanced antenna technologies used in modern NGSO systems. An updated Recommendation would empower the Radiocommunication Bureau to more precisely assess potential interference scenarios and help optimize spectrum utilization, which would help ensure sustainable growth of the satellite sector.

[1] *Functional description to be used in developing software tools for determining conformity of non-geostationary-satellite orbit fixed-satellite service systems or networks with limits contained in Article 22 of the Radio Regulations*

With a foundation of forward-thinking mindsets, technical skillsets, and modern digital tools regulators can begin to empower innovative technologies and business models to achieve digital inclusion and other social and economic policy goals. Regulatory authorities must commit themselves to adopt frameworks that facilitate investment, innovation, and competition in a way that encourages the deployment of new technology such as satellites that operate in low Earth orbit (LEO).

LEO satellite networks have unique potential to bridge the digital divide by providing fast, affordable service to places where broadband via legacy networks is otherwise unreliable or too expensive, or where it does not exist at all. However, their success depends on supportive regulatory frameworks that include: a) streamlining satellite licensing procedures with blanket licensing for customer terminals; b) allocating spectrum domestically in line with ITU Radio Regulations on a cost-recovery basis; c) enabling satellite-based international internet capacity without requiring domestic infrastructure; d) internationally harmonizing the approach to type approvals for customer terminals and e) allowing for the use of Earth Stations in Motion (ESIMs) terminals onboard foreign-registered vessels and aircraft to operate during transit without interference. To encourage investment, competition, and improved service options, these frameworks should also reduce or eliminate foreign direct investment (FDI) restrictions, import tariffs, quotas, and local manufacturing requirements, while establishing clear rules for spectrum sharing between terrestrial and space services through power limits or coordination in shared bands.

The U.S. Federal Communications Commission (FCC) provides a keen example of institutional adaptation to support innovation and digital inclusion. The creation of its dedicated Space Bureau demonstrates how regulators can restructure to better serve emerging technologies. This specialized division streamlines the processing of satellite applications, particularly for LEO constellations, enabling faster market entry for innovative services. The Bureau's digital-first approach to application processing and spectrum management showcases how regulators can employ technology to enhance their own effectiveness.

Telecommunications regulators can also significantly enhance their effectiveness through strategic regional and international cooperation frameworks that promote regulatory harmonization and knowledge sharing. By actively participating in regional regulatory associations and international forums, regulators can develop common approaches to emerging challenges, share best practices, and coordinate responses to cross-border issues. These collaborative platforms enable regulators to establish common standards, and create harmonized regulatory frameworks that reduce compliance costs for industry while facilitating cross-border services.

In conclusion, telecommunications regulators can further become digital ecosystem builders by adopting principle-based regulations, embracing digital technologies, creating enabling regulatory frameworks, and fostering international coordination. Through these approaches, regulators can play a crucial role in unlocking the full potential of technologies like LEO satellites to bridge the global digital divide.