

CONTRIBUTION

Infrastructure and connectivity

Regarding innovative measures at the international, national and local levels that National Regulatory Authorities (NRAs) could implement or foster, particularly in developing countries, the focus has been shifting lately from infrastructure into connectivity. Connectivity involves 3 sub-dimensions:

- Coverage gives end-users the capacity to use digital services;
- Performance of the networks provides the end users with fast and reliable access;
- Affordability fosters the penetration of new technologies and services.

NRAs need to work in all 3 sub-dimensions in order to promote connectivity, as indicated in Table 1.

Table 1 - Regulatory Measures to Increase Connectivity

Level	Sub-Dimension	Coverage	Performance	Affordability
International		Promote cross-border fiber networks; Lift barriers for international investment	Deployment of international Exchange Points (IXPs)	Promote use of Cloud services; Promote regional roaming
National		Foster multi-infrastructure deployment; Enable White Spaces spectrum	Enforce data-driven regulation; Migrate to IPv6 in preparation for Internet of Things	Promote infrastructure sharing; Competitive Telco market; Facilitate MVNOs entrance
Local		Work with local governments to lift restrictions on infrastructure	Migrate copper to fiber	Multiplayer infrastructure competition

Consumer access

Consumer access to ICT services (subscription, plans, platforms and apps) and devices (smartphones, tablets, computed-based, etc.), which was traditionally left to market players such as operators and equipment providers, is nowadays an area where NRAs are increasingly becoming involved. The following actions might be adopted by regulators regarding consumer access:

1. Depart from rigid rules and adopt a “light-touch” approach in order for the regulatory framework to be more responsive to the innovative ecosystem of m-services and apps.
2. Adopt multi-sectoral regulation, due to the cross-cutting nature of disruptive innovation.
3. Implement a flexible, transparent approach that promotes competition and allows innovation to thrive and provides incentives for investment and, ultimately, consumer benefit.

Some regulatory measures aimed at simplifying consumer access to ICT services are:

- Adequate regulatory arrangements for infrastructure-sharing to achieve goals for national access
- Eliminate exclusive arrangements governing m-services and apps, particularly those riding on MNOs and operating systems that raise competition concerns
- Avoid exclusive arrangements on pricing, fostering fair and non-discriminative tariffs
- Identify and consult all relevant stakeholders for input
- Adoption of light-touch regulatory mechanisms to foster the diffusion of m-services and apps.

Regulatory approaches need to be flexible enough to respond to harmonization efforts across sectors and even geographical regions. Clear consideration is needed to ensure that the regulatory approach adopted is not a barrier to future innovation and progress. If in doubt, it is suggested not to prescribe or regulate, because innovation needs time and freedom to blossom. NRAs need to recognize the importance of:

- Designing flexible, incentive-based and market-oriented policy and regulatory frameworks with regard to spectrum allocation and assignment for mobile broadband services, to create trust and provide for the necessary conditions for these services to thrive.
- Revising and reviewing current Government policies to make sure that they are still valid and appropriate, and ensuring privacy and security of government, business and consumer data.
- Open and collaborative regulatory frameworks to promote the development of cross-cutting services such as m-commerce, m-banking and mobile money, as well as m-health.
- Promoting network-sharing practices in all network and value-chain layers, while maintaining healthy competition between network providers.
- Putting in place innovative, out-of-the-box measures to stimulate the take-up of services and the creation of locally-relevant apps.
- Acquiring digital skills, which are essential for the wide take-up and efficient use of m-services and apps.

Market and business opportunities

Over the years some market and business opportunities have emerged and have a proven track of success, particularly in the fixed and mobile broadband sectors.

Winning formulas for fixed broadband

- Competition in DSL/cable
- Fixed number portability enabled
- Infrastructure sharing for fixed either allowed or mandated
- Converged licensing framework in place
- National broadband plan adopted

Winning formulas for mobile broadband

- Competition in mobile broadband
- Competition in international gateways
- Mobile number portability enabled
- Band migration allowed
- Infrastructure sharing for mobile (either allowed or mandated), including MVNOs
- National broadband plan adopted

Funding and financing

Some of the most successful funding and financing approaches are indicated in Table 2.

Table 2 - Investment Approaches

Investment approach	Funding source	Deployment and operations of infrastructure	Ownership of infrastructure
Private DBO*	Public and private sectors	Private sector	Private sector
Public outsourcing	Public sector	Private sector	Public sector
Joint Venture	Public and private sectors	Public and private sectors	Public and private sectors
Public DBO*	Public sector	Public and private sectors	Public sector

*Develop, Build and Operate