Digital Broadcasting Migration Implementation

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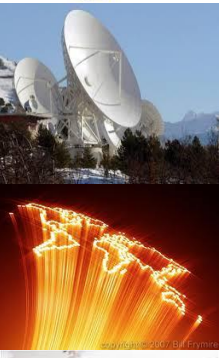


Introduction

Digital broadcasting uses frequency more efficiently and produces better quality video and audio than analogue broadcasting. The transition from analog to digital terrestrial broadcasting was agreed at the international levels with switchover date set to 17th June 2015.

Benefits

The transition from Analog to digital broadcasting brings a number of benefits including:

Increased choice and quality for viewers (as there will be more channels and the opportunity to provide a better image, including wide-screen aspect ratio, high definition and sound quality);

Better efficiency in spectrum use (as more data can be transmitted within the same bandwidth). Spectrum will be released to allow the development of more television and other services for consumers.





Goals and Objectives of Digital migration

The main goals of the digital migration are to enhance choice, interactivity and quality of broadcasting for the benefits of citizens and to reap the social and economic benefits of spectrum efficiency (digital dividend).

The specific objectives of the migration are to:

- ☐ Develop harmonized policies and regulations regarding digital broadcasting migration,
- ☐ Identify technical standards for digital broadcasting for the region,




- Develop regional and national frequency band plans for the provision of the digital broadcasting services,
- Develop licensing framework for awarding the digital dividend,
- Implement an agreed schedule for digital migration covering Digital Switch On, Dual Illumination and Analogue Switch off ,
- Ensure equal participation of all stakeholders including consumer participation to the migration process,
- Ensure effective and adequate human capacity development in digital broadcasting.

Roles of Stakeholders

Digital migration involves a wide range of stakeholders including *government, regulators, service providers, equipment manufacturers and consumers* that play diverse roles.





Role of Government

☐ Governments have a leading role in developing policies and roadmaps for accelerated digital migration and ensuring that consumers have the necessary support in order to benefit from digital broadcasting.

Government needs to:

o Put appropriate institutional, policy, legislative and regulatory framework to enable smooth execution of migration process within the set time,

- Provide fiscal incentives to enable consumers procure Set-Top Boxes and digital TV receivers at affordable prices, preferably through tax waivers and subsidies,
- Provide appropriate incentives and support for signal distributors and broadcasters to put in place necessary digital infrastructure and systems, and
- Support the development of local content.




Role of Regulators

Regulators will have a key role in setting the desired licensing frameworks, ensuring level playing field in broadcast services, signal distribution, spectrum allocation and cross-border regulation and in maintaining the requisite standards. *Regulators need to:*

o Allocate digital broadcasting spectrum based on the provisions of ITU region 1 and other regional plans,

o Coordinate spectrum management with neighboring countries to avoid interference so as to ensure a smooth transition process,





- Institute appropriate measures for ensuring safe disposal of disused analogue equipment to minimize adverse impact on the environment,
- Adopt digital broadcasting standards based on international recommendations and define the minimum standards/specifications for the Set-Top Boxes in line with international standards, and
- Promote consumer education and awareness.





Role of Broadcasters and Signal Distributors

Broadcasters have a critical role in rolling out of digital broadcasting networks and services.

Broadcasters need to:

o Enhance content development taking the digital environment into the account,

o Invest in studio and production equipment to facilitate the production of digital content,

o Build the capacity of human resources to adopt the new digital broadcasting skills, and

o Provide better technology for storage, processing and sharing of digital content.

Signal distributors play a major role in signal distribution, infrastructure development and operation.

They need to:

o Ensure carriage of signals from the studio to the distribution and transmission sites,

o Broadcast the signal to the designated areas, and

o Provision of quality services to broadcasters on an equitable, reasonable, non- preferential and non-discriminatory basis.




Role of Equipment Manufacturers

☐ Equipment manufacturers and vendors have a key role to assurance of the key adherence to the required and approved standards of equipment and hindrance to dumping of e-waste of analogue broadcasting equipments.

☐ The equipment manufacturers and other private sector can also play a critical role in financing research and development and supporting the migration process.




Role of Consumers and Consumer Associations

Consumers are critical in the uptake of digital terrestrial television by purchasing Set-Top Boxes or integrated digital TV receivers in order to receive digital terrestrial transmission.

The consumer associations' commitment and involvement is critical for the provision of universally accessible digital broadcasting services and the inclusion of people with disabilities and special needs in the accessing the new broadcasting services. They have also roles in guarding against consumer exploitation through unfair market practices.





Role of Regional Organizations

ICT Regional bodies have a key role in convening the ministers responsible for broadcasting, mobilization of resources for capacity building and in support of the harmonization of policies, frequency allocation and standards.

ICT Regional bodies have a major role in creating the platform for regional coordination and knowledge sharing, policy harmonization, capacity building and the implementation of the roadmap for digital migration.




Action Plans

Institutional Arrangement

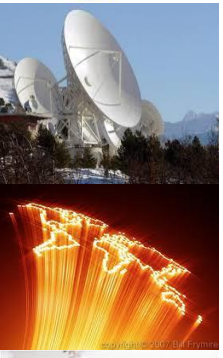
The migration from analog to digital is a long term process that requires the involvement of key stakeholders. *The following institutional arrangements are proposed for smooth transition for analog to Digital Terrestrial Television at national and regional levels:*

☐ A national steering committee drawn from relevant ministries and agencies represented by Ministers and Directors,

☐ National multi-stakeholders forums aimed at increasing awareness of the importance of digital broadcasting,




- A national Digital Terrestrial Television migration project office with adequate resources to facilitate smooth transition,
- Annual regional multi-stakeholders forum aimed at increasing information exchange and sharing of experience on the implementation of digital migration,
- Technical working groups that are established under the auspices of regional bodies to address spectrum management (digital dividend), licensing and specification for STBs, among others.



Creation of an Enabling Environment

Policy makers have a major role in developing a national strategy and plan for transition from analog to digital broadcasting with clear timetables and regulatory provision for licensing, spectrum planning and the effective use of digital dividend.

Digital Migration Policy and Strategy

Digital Migration Policy

Countries should have policy document that addresses the key public interest issues of digital migration. The policy document should outline decisions with regards to transition process and timetable, licensing, spectrum management and government incentives for enhancing affordability of digital receivers and Set Top Boxes, among others.




Digital Migration Strategy

The digital migration strategy that draws on the policy document should discuss the rationale for digital migration, standards, policy and regulatory interventions, the transition plan and other challenges and opportunities concerning the industry and consumers.

The policy and strategy papers should be developed by all Countries. These documents should be available to stakeholders including content providers, signal distributors, consumers, equipment manufacturers and others.

Licensing and Competition

The following actions should be undertaken by Countries with regards to licensing and competition:

☐ Broadcasting license should be given within the context of convergence licensing framework, wherever possible,

☐ Infrastructure sharing should be a key element of the licensing regime;

- Countries should consider two major licenses in the broadcasting sector – ***content service*** and **network services** (multiplexing).

- The number of signal distributors should be limited. It is preferred that countries license two signal distributors. In the case where two or more signal distributors are licensed, there should be interoperability between signal carriers.




Spectrum Planning and Allocation

☐ The transition from analogue to digital broadcasting will result in changes in spectrum usage allowing excess freeing capacity that creates a spectrum dividend to the Government. In order to achieve this, it is recommended that governments should revisit the assignments in the ITU GE-06 Plan and optimize the assignments using a range of frequency planning tools and the latest propagation techniques.





- The assignment of the frequency in Countries should be within the framework of the ITU GE-06 Plan for region 1. The national frequency plan should be updated based on regional and international agreements.

- Any modification of bands III, IV and V of GE06 plan should be coordinated with neighboring countries and with subsequent filing with the ITU.

- Spectrum should be coordinated to eliminate harmful interference between Countries.

- There is a need for cooperation between neighboring countries with regard to licensing of transmitters located at geographical borders.

- Countries should consider further optimization of the broadcasting frequency after the digital switch-over;

- Consistent with the GE06 Countries should facilitate the sharing of the band 174 – 230 MHz for DTT and T-DAB; DTT should be assigned to band (174 – 214) while T-DAB should utilize band (214-230MHZ;

- Additional bands 230–238 / 246–254 MHz can be used for DTT services as per GE06 Plan

- The transition from analogue to digital broadcasting will result in the ceding of the 790-862 currently being utilized by the existing analogue broadcasters. Countries need to harmonize band plan for the 790 – 862 MHz and create a unified 800MHZ band for electronic communications services.

- Initial emphasis to be placed on migrating the bands 214–230 MHz and 790–862 MHz.

- Countries need to re-plan the broadcast spectrum within 470 to 790 MHz range.

- Where possible Countries should avoid making any new DTT assignments in the band 790–862 MHz unless it is for the purposes of facilitating a smooth migration process.

- Band 790 -862 MHz should be continued to be allocated for mobile services including IMT and should be used when available.




Technical standards

☐ In order to ensure compatibility, it is important to define the appropriate standards for digital broadcasting in the region.

The approach adopted is to:

o Identify existing digital broadcasting standards available worldwide;

o Analyze them from a technical perspective, their compatibility with GE06 plan and with reference to individual countries and make recommendations on the choice of standards and the way forward.




Transmission Standards

☐ Harmonization of transmission standards is essential to achieve interoperability between systems and attain economy of scale. Lack of commonly agreed standards would be as barrier to achievement of universal access to digital television service and to the achievement of the economies of scale in manufacturing and distribution of the equipment in the region.





The following actions are therefore necessary with regards to adoption of regional standards:

- DVB-T2 should be adopted as the common standard for DTT in our region;
- MPEG 4 is recommended for compression,
- DVB-S2 standard should be considered for satellite broadcasting,
- DVB-H for mobile TV standard,
- IBOC system for use as the FM digital sound broadcast format, and
- DRM for Medium and Shortwave radio broadcast,

Set Top Box Specifications

☐ Given that DVB has been recommended as a standard on the transmission network side, it is advisable that Set Top Boxes comply with the DVB family of standards. The specification (e.g. free-to-air, conditional access, low-level entry, etc) needs to be determined as part of a broader policy discussion.

☐ Countries should have a task team to develop a regional technical specification for STBs and integrated digital TV based on experiences in other countries in Europe and Africa.








☐ Governments should provide appropriate incentives so as to attract potential manufacturers with a view to licensing a maximum of three (3) manufacturers of STB.

Such incentives should include:

o Tax holiday on manufacturing inputs,

o Zero import duty on manufacturing equipment,

o A government policy to protect the market through a moratorium on imports of similar equipment for a specified period of time,

o Provision of sufficient infrastructure, including electricity, water etc.,

o A maximum of three manufacturers should be allowed. It is recommended that the regulator should manage the process for the selection of the manufacturers of the Set Top Boxes.




Content Development and Regulation

Countries should consider the following with regards to content during the transition period.

☐ Digital content should be regulated with light touch approach,

☐ Channels are required to include electronic programming guide (EPG) in order to allow consumers to navigate through the available programmes,





- Governments should facilitate the establishment of local content development funds within national Universal Service Funds (USF) to enhance the development of local content,

- Capacity building in digital content production through training and apprentice programmes should be considered,

- Local content provisions should be spread across the multiplex and not focused on individual channels.

Consumer Awareness and Participation

The success of the transition programme will be determined largely by the extent to which the consumer is well informed on the key issues of the programme. *It is therefore recommended that:*

☐ Policy makers should pay particular attention to costs that are involved in the broadcasting value chain (production, transmission and reception) and ensure that costs will not be burdensome to consumers.

☐ Regulators should embark on continuous sensitization of the general public on the digital switchover as approved by Government.

☐ All national and international events should be encouraged to buy into this awareness programme.








Climate Change Issues

Digitization will inevitably result in generation of additional e-waste; which is a serious concern to climate change that should be addressed.

O Countries should adopt the Switzerland model of e-waste disposal whereby all actors (manufacturers, wholesalers and retailers) are licensed,





- A token amount (an advance recycling fee) should be charged at points of purchase of every electronic equipment, while disassembling centres are established in order to achieve an organized retrieval and safe disposal of e-waste arising from digitization;
- All importers of transmit and receive broadcast equipment should be licensed by the Regulator as Broadcast Equipment Dealers.




Capacity Building

Capacity building is an important aspect during digital transition. Every stakeholder should be provided with the necessary skills and knowledge in order to benefit fully from the migration to digital broadcasting.

National level capacity building initiative should focus on:

o Increasing public awareness of the digital migration,

o Enhancing the awareness of policy makers, broadcasters, media, content producers.

Countries need to establish a regional platform for ongoing capacity building in digital transition with focus on:

o Creation of programmes for capacity building with a focus on creating a critical mass of qualified and skilled professionals and experts in the governments, regulatory authorities, broadcasters, frequency planners, equipment resellers and public on the complex issues technical, regulatory and economic issues of digital migration,




- Empowering people involved in the migration process through technology knowledge transfer in digital transmission technology, digital studio technologies, content development, spectrum planning, networking and applications, and
- Creation of forums on policy and regulatory harmonization, new regulation and regional information sharing.





Implementation Schedule

Efforts should be made in promoting regional coordination in transition process by synchronizing the digital switch-on and analog switch-off dates.

- Countries should also coordinate pilot trials in order to share experience and address interference issues.

- Countries need to adhere to the agreed time table.

Phases of the roadmap of the regulator and DTTB and MTV network operator and service provider

Actor	Phases of the roadmap		
Regulator	ASO planning DTTB/MTV policy development Licensing policy & administration		License regulation
DTTB network operator	Preparation	Planning	Implementation Analogue switch-off
MTV network operator	Preparation	Planning	Implementation








Conditions to achieve a successful transition to DTTB and the introduction of MTV services, including:

- Strong leadership from government;
- Firm decision that sets the analogue TV switch-off date;
- Close cooperation between the regulator and market parties;
- Clear and timely regulatory framework (including decisions on the “Digital Dividend”);
- Adequate information and assistance to viewers.

Analogue Switch-Off (ASO) planning phases

Three phases can be identified:

1. Phase 1: The introduction of DTTB Services

2. Phase 2: The simulcast period and the preparation of the Analogue switch-off;

3. Phase 3: The analogue switch-off.








Phase 1:The introduction of DTTB services

In this phase of the planning the DTTB network will be rolled-out (in the region) and digital transmitters will be installed in either existing or new sites.

It is important that in this phase of the planning:

1. The National Spectrum Plan should be updated and the DTTB licensing should be completed;
2. No further analogue terrestrial television frequency licenses should be issued and possibly existing analogue television licenses should be revised (to make it possible to terminate the licence);





3. Existing regulations have been reviewed to ensure that they reflect the implications of digital transmissions;
4. Current analogue broadcasters are being informed that they will be allowed to continue with analogue transmissions up to analogue broadcasting switch-off date;
5. The start-up phase of digital broadcasting will be closely monitored in terms of coverage, reception quality and interference in general and in particular in the cable reception.

Phase 2:The simulcast period and the preparation of the analogue switch-off

In this phase of the planning the viewers in the affected region, are being actively informed about the switch-off date.








It is important that in this phase of the planning:

1. Receivers are available and distributed in the right amounts and locations;
2. Postcode or address 'checker' (for affected viewers to check if they are affected and possible what type of receiver is best – rooftop aerial or perhaps an indoor aerial might be sufficient) and websites are tested and operational;
3. Contact centers are tested and ready to be operational;

4. In case of financial compensation and installation aid, the logistics chains for these services are tested and operational;
5. Broadcasters will include in their programming ASO information and actively promote switch-over to digital.

Phase 3: Analogue switch-off

This stage will involve the switching off of all analogue terrestrial broadcasts in the region. Ideally before analogue switch-off all affected viewers have upgraded their TV sets to digital by using a set-top-box or IDTV. All current analogue terrestrial broadcasters will need to have migrated to a digital platform.




It is important that in this phase of the planning:

1. The affected viewers are being monitored (by having call centers on stand-by) and research is carried out to identify any problems and learning points for the next switch-off region. Especially after the first region some time should be allowed before switch-off starts in the next region in order to incorporate the lessons learned;
2. Analogue equipment is dismantled, allowing re-use of transmitter infrastructure;
3. Re-engineering of digital transmitters sites to remove any analogue restriction that might have existed in order to protect analogue TV.




References

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Thank you for listening