**Transition from Analogue to Digital Broadcasting**

**Policy and regulatory aspects**

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**Content**

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<thead>
<tr>
<th>Policy &amp; Regulation</th>
<th>Main items</th>
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<tr>
<td>- Key issues and choices faced by the Regulator when formulating DTTB, MTV or ASO policy objectives</td>
<td>- Functional building blocks related to Policy &amp; Regulation</td>
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<td>- Implementation of policies</td>
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<td>- By issuing information, funds, rights, licenses and permits to (qualified) market parties</td>
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<td>- In compliance with the relevant legislation</td>
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Regulator’s roadmap: Policy development

- DTTB/MTV policy development
  - International agreements
  - Existing national acts
  - Policy documents

Input data

Functional building blocks

National Regulation

2.4 National spectrum plan

DTTB/MTV activities

Consultation with market parties

2.13 Comm. to consumers & industry

Time line

No clear marker indicating start of process

Technology & Standards Regulation

1. Presentation Formats
   - DTTB: SDTV and/or HDTV
   - MTV: a minimum bit rate/service

2. Transmission Standard
   - DTTB: e.g. DVB-T(2) or ATSC
   - MTV: e.g. DVB-H or T-DMB

3. Compression technology
   - DTTB: MPEG2 or 4
   - MTV: e.g. H264/MPEG-4

- When licensing DTTB and MTV services only set standards, if:
  - A significant risk of market failure is expected
  - Safeguarding public interests/Universal Services is required

- If deemed necessary, only set standards for system elements that support the set policy objectives
Law Enforcement & Execution

- Check task assignment of
  - Nat. Spectrum Plan, Standards, Terms
  - Assign & monitor spectrum
  - Assign & monitor Broadcast licenses & advertising

- Restructuring towards converged model
  - DTTB/MTV might drive introduction

Segmented Model
- Ministry or ministries
- Radio Agency
- Broadcast Commission
- Telecommunication standards Commission
- Advertising standards Commission

Key tasks & duties
- Policy development
- Assigning spectrum licenses & monitoring
- Assigning broadcast licenses
- Monitoring broadcast content compliance (code of conducts)
- Monitoring Advertising compliance (code of conducts)

Centralized Model
- Parliament
- Independent Regulatory Authority

National Spectrum Plan (NSP)

- NSP covers all spectrum use:
  - Govern.: Military, Emergency, PSB
  - Comm.: Mobile, DTTB/MTV
  - Other (Radio Astronomy)

- NSP is a key management tool:
  - Objectives, instruments & regimes
  - Current & planned use

- NSP planning = strategic planning
  - Market consultation & analysis
  - Ref. ITU-R report SM2015 for factors

In Spectrum Register per range:
- Radio Service
- Prescribed System (e.g. DVB-T)
- License regime (e.g. Free)
- License holder & duration
- Radio interfaces
- User rights (exclusive/shared)

NSP may include pricing (per range)
- One-off/Recurring
- Management costs/Market value
**Communication to Consumers & Industry**

- **Communication if:**
  - Intervention restricts/changes free market
  - Defined Universal Services & Access
  - Health & safety hazards
- **ASO communication is different**

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<tr>
<th>When</th>
<th>Category</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Recurring</td>
<td>Spectrum Planning</td>
<td>• Market consultations &amp; Decisions and Appeal procedures</td>
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<td></td>
<td>• National Spectrum Plan (NSP) &amp; Re-farming &amp; revoking spectrum</td>
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<td>• International planning conferences</td>
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<tr>
<td>Case by Case</td>
<td>DTTB/DTV</td>
<td>• Market consultations &amp; Decisions</td>
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<td>Digital Dividend</td>
<td>• Framework, Standards, Procedures, Terms &amp; Cond., local permits</td>
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<td>ASO</td>
<td>• Market consultations &amp; Decisions</td>
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<td>• International decisions</td>
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<td>• Models, Services, Procedures, Roll-out, Aid, etc.</td>
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**Regulator’s roadmap: Licensing Policy**

- **Licensing policy & regulation**
- **ASO plan**
- **DTTB/MTV regulation**
- **Issue of licenses**
- **Duration depends on neighbouring countries**

- **Input/ output data**
- **Frequency plan & planning**
- **License application**
- **Consultation with market parties**
- **International frequency coordination**
- **2.3 ITU-R**
- **2.2 Licensing framework**
- **2.6 License Terms & Cond.**
- **2.7 Local Permits**
- **2.8 Media Permits & Author.**
- **2.5 Assignment Procedures**
- **2.9 Bus. Models & Publ.Fin.**
- **Time line**
**Licensing framework**

- Assigning 3 types of rights
  - Spectrum
  - Broadcast
  - Operating
- Extra = MUX function
- 2 models for spectrum rights
  - Assigned to MUX operator (integrated with Service Provider/Network Operator) = functional bandwidth manager
  - Assigned to Network Operator + Regulator = functional bandwidth manager

**ITU-R Regulations**

- GE06 plan entry types
  - Assignments
  - Allotments (layers)
- 3 Steps to determine DTTB/MTV spectrum
  1. Assess usability of rights
  2. Determine applications:
     - Number & service type
     - Combinations
     - Timing
  3. Assessing service coverage
- Assignments:
  - For each TX site station characteristics (XY, ERP, Height)
- Allotments:
  - Specified area
  - Reference Network – 4 types
  - Ref. Planning Configuration – 3 types
- Step 3 is optional for the Regulator to carry out
- Requires planning software, databases and accurate current use (abroad)
License Terms & Conditions

- T&C dependent on local situation:
  - Existing (int.) legal framework
  - Assignment procedure
  - Market structure
- Assign transparent
  - Publishing ‘essential’ & other criteria upfront
  - Grounds for exclusion
- Open Network Provisioning (ONP) when 1 MUX operator
  - Grounds for refusing
  - Max capacity/broadcaster
  - (Fair) Pricing & Reservations

Local Permits

- Local authorizations required to assure:
  - Market access: site sharing & fair pricing
  - ‘Horizon pollution’ control
  - Health hazards control
- Instruments:
  - Building permits
  - Site sharing & pricing rules
- Regulatory level vary:
  - National or local level
  - Spectrum licence or building permit

Compliancy check for:
- Field strength
- EMC
- Mechanical strength
- Noise limits
- Dangerous goods
- Horizon pollution

Default = access + grounds for refusal:
- Request not reasonable
- Requested capacity not available
- Owner reserved capacity

For Fair pricing to regimes (applies to reservation too):
- Price cap
- Cost Plus
Media Permits & Authorizations

- Keep separate broadcast rights for:
  - PSB: separate section or Act (Universal Service)
  - Commercial Broadcasters: Media/Broadcast Act

- Broadcast rights organized at:
  - Program level/linear broadcast stream
  - Platform level/multiplex level

- Different requirements for granting:
  - Applicant (legal status, ownership)
  - Program Services (editorial & ads)
  - Additional Services (EPG, subtitling)

Content Service criteria:
- Local news coverage
- Arts, religious programs
- Number of repeats
- % local production
- Max hours of advertising

Service obligations:
- Portfolio/bouquet
- Must carry & Pricing
- PSB carry
- Population coverage
- Bandwidth per service
- Network availability

Assignment Procedures

- Three key instruments:
  - First Come First Service (FCFS)
  - Public Tender (PT)
  - Auction (don’t mix with PT or market priced license fees)

- Combine MTV & DTTB assignments:
  - One bidding round
  - One license type

- Existing license holders:
  - PSB: by priority
  - Others: renewal

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<th>Pro</th>
<th>Con</th>
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<tr>
<td>FCFS</td>
<td>Fast</td>
<td>No spectrum efficiency</td>
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<tr>
<td></td>
<td>Simple</td>
<td></td>
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<tr>
<td>Public Tender</td>
<td>Focus on quality</td>
<td>Time consuming</td>
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<tr>
<td></td>
<td>Thorough procedure</td>
<td>Not transparent</td>
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<tr>
<td></td>
<td>Regulatory control</td>
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<tr>
<td>Auction</td>
<td>Allocation efficiency</td>
<td>Less control over end result</td>
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<td></td>
<td>Simple</td>
<td>Investment slow down</td>
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<tr>
<td></td>
<td>Transparent</td>
<td>Winners Curse</td>
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<td>Returns economic value</td>
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Conclusions Policy & Regulation

- Policy & Regulation for ASO and DTTB/MTV assignment can differ and coexist
  - ASO: services (& levels) are Government led
  - DTTB/MTV assignments: services (& levels) are market led

- Roadmap of the functional building blocks can vary from country to country
  - Local situation
  - Institutional/legal framework

- Functional building blocks are closely related
  - Roadmap execution is an iterative process

Thank you!

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