

Orange perspectives on spectrum management

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Agenda

1. Spectrum management framework
2. Auctioning and relicensing spectrum
3. Refarming spectrum
4. Conclusion

Ideal spectrum management framework

Principles

- Transparency
- Long term perspective
- Fair competition
- Stability
- Negotiation
- International approach
- Spectrum usage flexibility
- License fees should not harm MNOs' investments



Management elements

- Comprehensive legal and regulatory framework
- Consultations
- Spectrum awards (beauty contest, auctions)
- Sustainable spectrum fees
- Presumption of spectrum license renewal
- Harmonization and neutrality



Deliverables

- Long term spectrum strategy plan.
- Develop a detailed & transparent national spectrum plan
- Make available a national frequency register detailing licences issued & available
- Spectrum license

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Relicensing spectrum

Orange is in favour of automatic license renewal

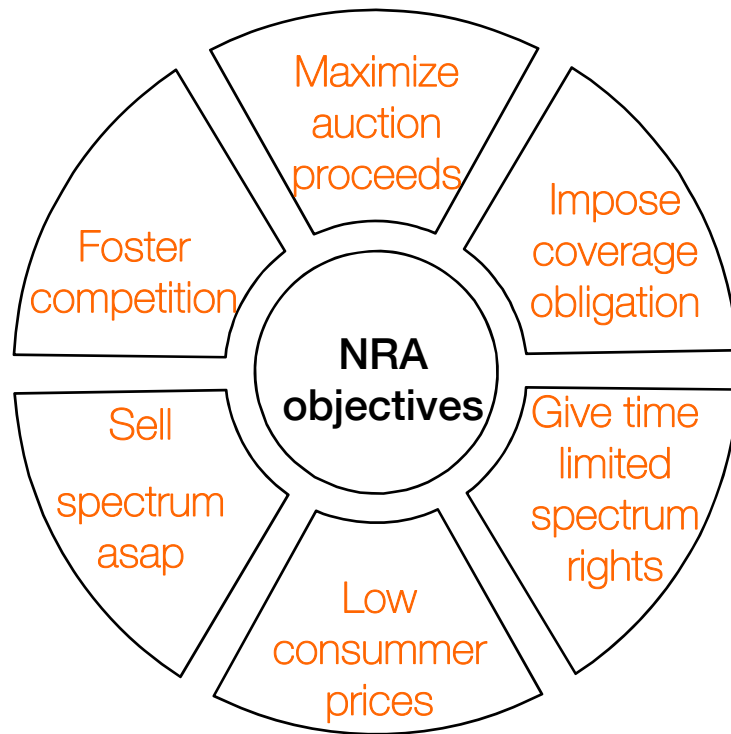
- Incumbent MNOs will be present in the market for the longer term. So presumption of spectrum license renewal should be the rule.
- Conditions for renewal should be discussed at least 2 years in advance.
- Spectrum license renewal conditions should be known prior to major spectrum auctions.
- License renewal should not be a mean to levy new taxes.

Renewal through spectrum auctioning

- Incumbents place significant reliance on their existing spectrum assets and any loss will have a major impact on their businesses.
- Created overly complex bid strategy and may lead to inefficient results.
- Can be a solution when an operator fails to meet its obligations

Auctioning spectrum

NRA and MNOs have conflicting objectives
A trade off has to be found through negotiation



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Spectrum refarming

A powerful tool in operators' hand.

Remove regulatory barriers to refarming

Assign the entire spectrum bands



Regulator's
role



Reshuffle spectrum blocks
between operators

Promote equitable spectrum
holdings between operators

With the advent of UMTS 900 and LTE 1800 spectrum refarming proved to be a very efficient mean of re-using "old" spectrum assets.

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3. Network and Spectrum sharing

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Ever growing wireless broadband data traffic require more and more spectrum

Several new mobile bands are candidates for next World Radio Conference 2016 up to 1.2 GHz of new spectrum

Refarming and spectrum aggregation gives more flexibility to combine old and new spectrum bands.

Licensed Shared access, unlicensed or opportunistic spectrum assignment regimes (white space) will remain marginal

Lower OPEX and CAPEX is key to mobile operators

Acquiring more spectrum is a more cost efficient alternative compare to densify mobile networks (additional radio sites)

National regulatory frameworks must enable spectrum sharing/leasing between operators.

It is essential for MNOs to pay the right price for spectrum, i.e. with enough payoff compare to operator's spectrum valuation
Yearly spectrum fees must be reviewed regularly with NRA

Carrier grade QoS

Exclusive spectrum rights of use should remain mainstream regulatory regime. It is the best way to minimize interferences.

Radio co-existence issues ,even within an individual spectrum licensed regime, becomes more challenging to deliver good QoS

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