Tailoring spectrum management strategies to local conditions – the role of economics

CTO Workshop
'Spectrum Management: A Framework for the Future'

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Overview

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- Why local conditions matter
- Implications for spectrum management
- How economics can help in choosing the most appropriate strategy
- An example: Licensing of fixed wireless access operators in Nigeria

Why local conditions matter

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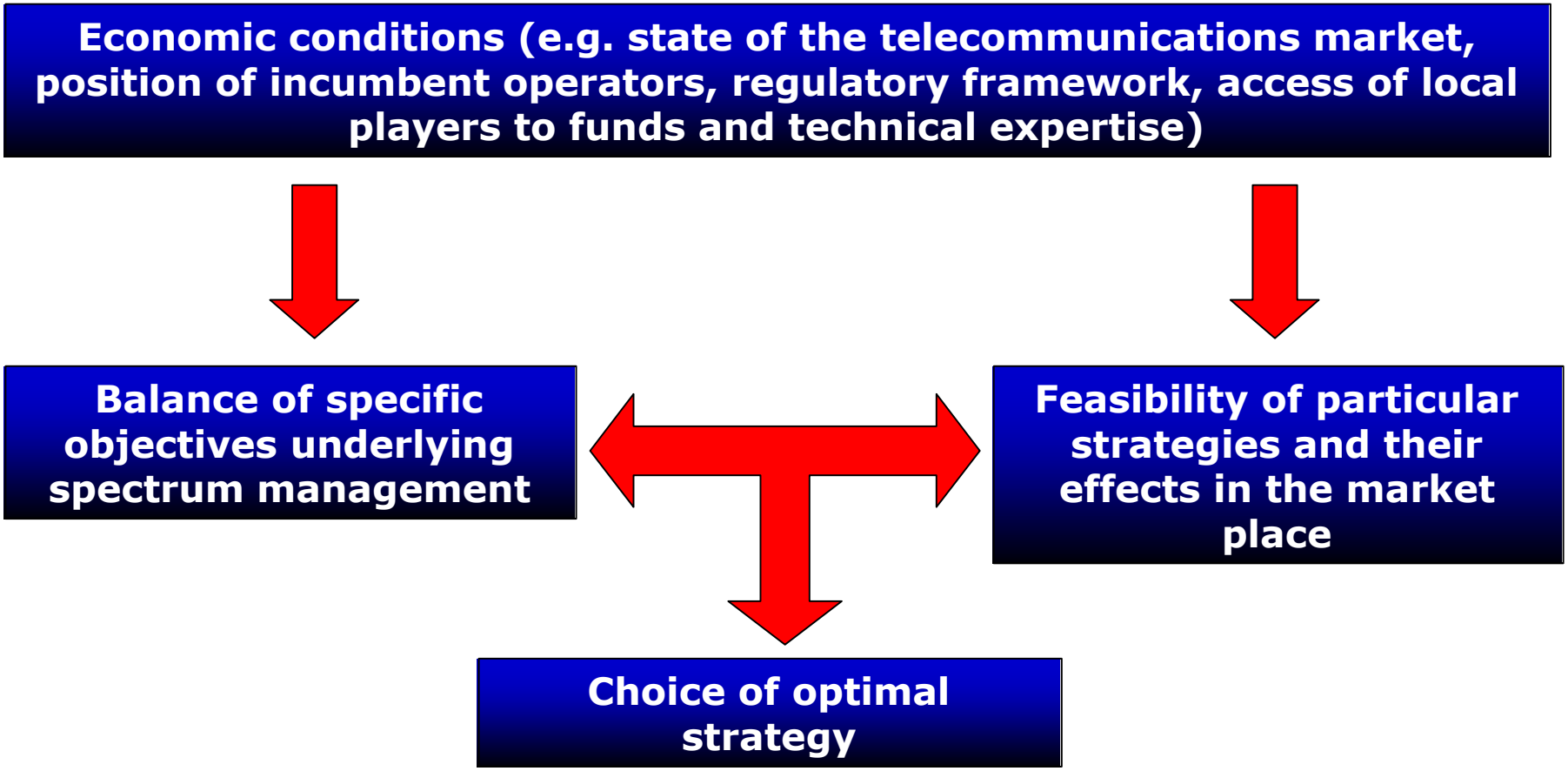

Impact on balance of objectives

- Overriding objective of spectrum management: efficient use of spectrum
- Various (and potentially conflicting) dimensions of efficiency
  - Static allocative efficiency
  - Productive efficiency
  - Dynamic efficiency
- What is meant by 'efficient' spectrum use may depend on market conditions
- Importance of competition may vary
- Long-term vs short-term focus

Impact on feasibility and effectiveness

- Effects in the market place depend on how (potential) spectrum users respond to incentives
- Commercial opportunities driven by
  - Market conditions
  - Regulatory framework
  - Financial and logistical constraints
- Spectrum management strategies may need to be 'robust'
  - Limited information available to spectrum managers
  - Limited ability to monitor spectrum use and enforce licence conditions
- Constraints arising out of past actions

Implications for spectrum management

- Tried and tested strategies may not work as intended
- Trade-offs may differ
  - Benefits of long-term spectrum management plans may have to be balanced against the cost of delayed implementation (but resist the temptation of a purely reactive strategy)
  - 'More competition' may conflict with 'rapid investment and roll-out'
  - More market-based approaches may produce undesirable results if they produce short-term fixes

Implications for spectrum management (contd.)

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- Spectrum management, and in particular licensing, is likely to have to perform wider functions – for example, licence conditions may substitute for non-existent regulatory framework (e.g. interconnection)
- Spectrum managers need to anticipate the likely effect of various actions in the market place, based on how potential spectrum users can be expected to behave

How economics can help

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- Not substitute for, but inform policy decisions
- Highlight trade-offs and identify those factors that are crucial for making choices, for example:
  - Information available to the spectrum manager
  - Speed of roll-out vs. price levels
  - Constraints faced by bidders (e.g. lack of interconnection opportunities)
  - Logistical constraints
- Analyse the most likely response of (potential) spectrum users to various spectrum management options, for example:
  - National vs. regional licensing
  - Specific vs. general licences
  - Auctions vs. comparative selection process

An example: FWA licensing in Nigeria

- Little information about potential interest in FWA licences
- Role of FWA potentially rather different from that in countries with high teledensity
- Concerns about potential use for self-supply rather than provision of public services
- Desire to ensure widest possible availability and roll-out
- Desire to run an open and transparent process
- Logistical constraints
- Decision to offer regional licences with tiered roll-out obligations to match commercial potential of various licensing regions

FWA licensing in Nigeria (contd.)

- Little information about potential synergies across licensing regions
- Multi-stage allocation process
  - Initial application and demand evaluation
  - Auction (design to be finalised depending on information revealed through demand evaluation)
- Considerable level of demand for many regions whilst in others there was excess supply
- Some regions were perceived to be critical
- Apparent synergies across particular groups of regions

FWA licensing in Nigeria (contd.)

- Logistical constraints ruled out simultaneous multiple round auction
- Sequential sealed bid auction likely to have been inefficient because of aggregation risks faced by bidders who would benefit from synergies
- Decision to implement a sequential combinatorial auction
  - Combinatorial bids for licences in different groups of regions
  - Split of regions into groups to reflect synergies
  - Critical regions auctioned first
- All but two of 50 licences were allocated in the bidding process which raised about $36 million*

***The final amount raised was less than this as some auction winners defaulted on payment and were not awarded licences**