

# Expanding Connectivity through Access and Interconnection

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# Interconnection Definition

- “the set of legal rules, technical, commercial and operational arrangements between network operators that enable customers connected to one network to communicate with customers of other network” *[ITU]*
- “linking with suppliers providing public telecommunications transport networks or services in order to allow the users of one supplier to communication with users of another supplier and to access services provided by another supplier, where specific commitments are undertaken” *[WTO]*
- “the physical and logical linking of public electronic communications networks used by the same or a different undertaking in order to allow the users of one undertaking to communicate with the users of the same or another undertaking or to access services provided by the parties involved or other parties who have access to the network” *[World Bank]*

# Access Definition

- “Access means the making available of facilities and/or services, to another undertaking, under defined conditions, on either an exclusive or non-exclusive basis, for the purpose of providing electronic communications services.” *[Body of Knowledge on Infrastructure Regulations*  
*[<http://regulationbodyofknowledge.org/>)]*

# Why Interconnection?

- Interconnection became increasingly important regulatory and market issue subsequent to the liberalization of the telecom market.
- In a competition environment, networks interconnection requires cooperation of usually competing operators in order to enable exchange of traffic and access to facilities and services provided by other operators.
- OECD observed that:

*“the regulation of the terms and conditions under which competing firms have access to essential inputs provided by rivals has become the single biggest issue facing regulators of public utility industries. This issue is both theoretically complex and inherently controversial. Since the development of competition and the success of liberalization often depend on the access terms and conditions chosen, there is also a strong public policy interest in getting these terms and conditions “right”. At the same time, new entrant firms and incumbents often have a substantial financial stake in the outcome and therefore a strong interest in negotiating aggressively.”*
- Significant changes took place in the telecommunication sectors in the region since early 1990 whereby state-owned telcos began to be privatized, gradually introducing deregulation and competition while phasing out the monopoly of telecom. The main reason was to improve the networks expansion and delivery of services through attracting private and foreign investments.

# Why Interconnection? (continued)

- According to ITU surveys, interconnection related issues are ranked by many countries as the single most important problem in the development of a competitive marketplace for telecommunications services...” [Intven et al. 2000]
- Interconnection is largely considered the most critical success factor post market liberalization.
  - Interconnection enables smooth market entry as well as fair competition
  - Interconnection is crucial to universality of telecommunications access/service
  - Interconnection leads to enhancing quality of services
  - Interconnection enables exercising the right to communications and consumer choice

*[Infodev: Telecommunications Regulations Handbook]*

# Why Interconnection? (continued)

- Interconnection enables access. **Access** covers, among other things:
  - access to network elements and, which may involve the connection of equipment, by wire or wireless means (in particular this includes access to the local loop and to facilities and services necessary to provide services over the local loop),
  - access to physical infrastructure including buildings, ducts and masts;
  - access to software systems including operational support systems,
  - access to number translation or systems offering equivalent functionality,
  - access to fixed and mobile networks, in particular for roaming, access to conditional access systems for digital television services; access to virtual network services;

*[Infodev: Telecommunications Regulations Handbook]*

- Interconnection is needed to achieve faster, equitable and sustainable expansion of infrastructure services, particularly in the underdeveloped countries in the world. [J. Bizzina 2005]

# Regulatory approaches to Interconnection and access

## Ex Ante Approaches

- Establish guidelines prior of negotiations
- Set default interconnection arrangements in advance of negotiations
- Establish deadlines for various stages
- Establish pricing / cost basis
- Establish process for dispute resolution
- Set out clear sanctions scheme
- Offer incentive regulation to complete negotiations

# Regulatory approaches to Interconnection and access

## EX-POST INTERVENTION

- Decide on disputes quickly and impose sanctions on operators resisting or delaying interconnection
- Regulators reviews and approves interconnection agreements
- Regulators monitors interconnection to ensure compliance with regulations and agreements
- In some cases, the regulator is required to approve the agreement because, under the interconnection regulations or legislation, no agreement can go into effect before obtaining regulatory approval.
- Regulator intervenes and regulate the interconnection price. In other cases the regulator intervenes, in case operators fail to negotiate the price or to renew the agreement.
- Ex post intervention also often refers to intervention in the form of litigation or formal disputes. This was the approach that New Zealand took until 2002 when it decided that an interconnection regime in which the only remedy is resorting to the courts was an interconnection regime that unnecessarily delayed the onset of meaningful competition.



# Regulatory framework

# Key Interconnection Issues – Framework

- Adequate regulatory guidelines for interconnection negotiations
- Availability of interconnection with incumbent operator for various types of services
- Access to standard interconnection terms with incumbent operators
- Ability of regulators to enforce regulations, gaps between eligible and real capacities and enforcement powers.
- Independent and timely resolution of disputes.
- Non-discriminatory access to interconnection facilities and services

# Key Interconnection Issues – Commercial

- Rates and structure of interconnection charges. I.e. basis for calculations (type of cost calculation, revenue share, bill & keep, etc..)
- Unbundling of interconnection charges for different network components and related services
- The high percentage of total revenues generated by mobile termination leads to that the interconnection has become a strategic issue.
- Protecting the MTR and resisting revenues decline is a key concern for dominant/SMP MNOs.
- The effect of MTR on retail prices and demand.
  - High MTR benefits MNOs with larger population through on-net / off-net price discrimination.
  - High MTR can represent entry barrier and barrier to the application of on/off net flat rates
  - Low MTR benefits smaller through competitive pricing
  - Low / no MTR results in lower retail prices leading to higher demand and usage.
- Urban Vs rural balance of traffic, Inbound Vs outbound international traffic
- Effect of incumbent and SMPs
- Payments for network modifications to facilitate interconnection
- Confidential treatment of competitive and customers information

# Key Interconnection Issues – Technical and Operational

- Open network standard and technical compatibility
- Location of point of interconnection (POI)
- Access to signaling systems, advanced digital features, billing systems, operation support systems (OSS), call-related databases, and other software to provide advance services
- Access to unbundled network services including local loops.
- Access to numbers and implementation of number portability
- Collocation and infrastructure sharing
- Quality of interconnection, including availability of sufficient interconnection capacity to avoid congestion and to ensure timely provisioning of interconnection services and facilities.

# Challenges and opportunities

- Creating and sustaining a fair interconnection environment.
- Increasing competition and changing market dynamics / structures / business models
- Technology developments, growing disruptive technologies, VoIP, Wi-Fi, Wi-MAX, NGN, / Apps / OTTs / Financial Service
- Convergence of Telecom, IT, & Media, etc..
- These developments while bringing about great opportunities, they create serious challenges for policy makers and Regulators.
- Regulators must be fast to develop new tools and approaches to cope with these developments, since traditional methods may strain the market functionality