

Investments Opportunities in the Telecommunications Sector in Lebanon

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Outline

- The infrastructure: a booster for a healthy economy
- Infrastructure needs in the telecom sector in Lebanon
 - Mobile market
 - Fixed and International markets
 - Broadband (BB) market
- International experience: financing infrastructure investments
- Tools to ease in new investments



The infrastructure: a Booster for a Healthy Economy



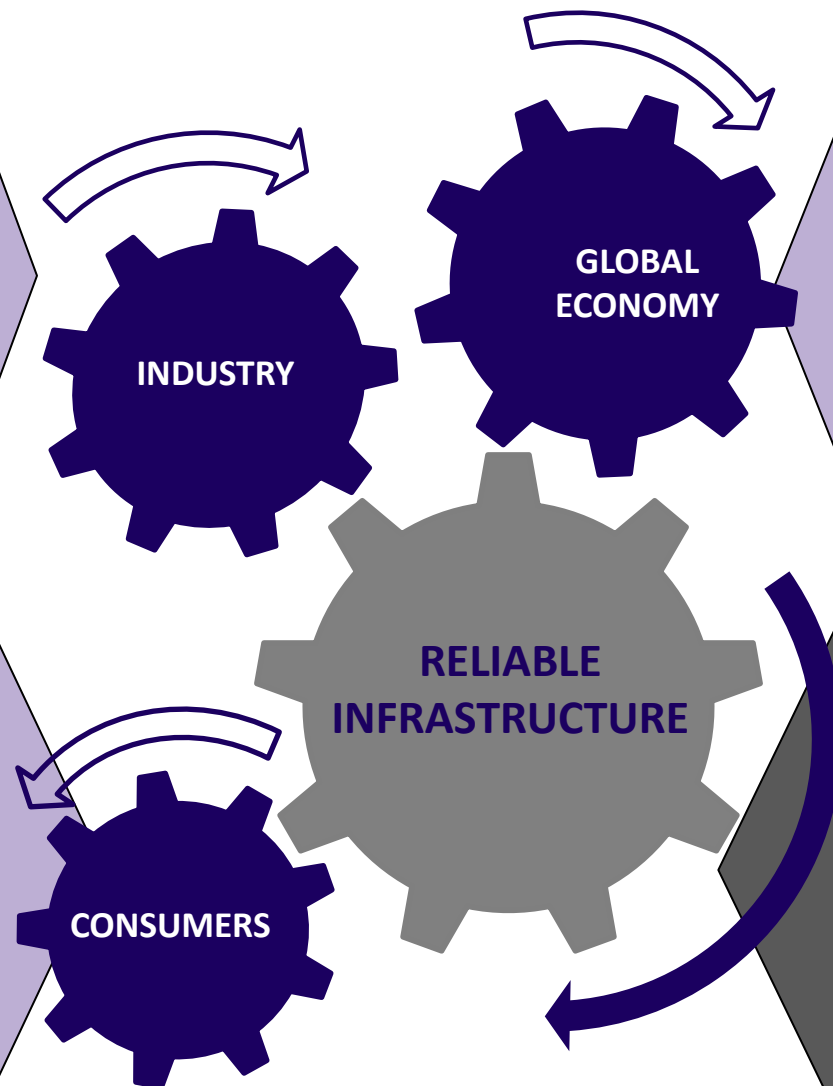
A reliable advanced infrastructure ensures high customer benefits, enhances sector performance, and enables Lebanon to regain a regional leadership position by improving its overall economy

Enhance Telecom Industry Performance:

- Deploy **new technologies** to cope with customers demand sophistication
- Increase overall **revenues** of the sector as percentage of GDP
- Increase **investments**

Increase Customer Benefits:

- Increase **availability and penetration** of services among all segments
- Reduce **prices** for end users
- Improve **quality of service**
- encourage innovation and emergence of **advanced services**



Improve the Overall Economy:

- Improve **productivity and efficiency** of the different sectors
- Increase **profitability** of other industries
- Create **new job opportunities**
- Catalyze growth of **information economy and e-services**
- Sustain **country wide ICT efforts**
- Improve **integration** of the economy with the rest of the world

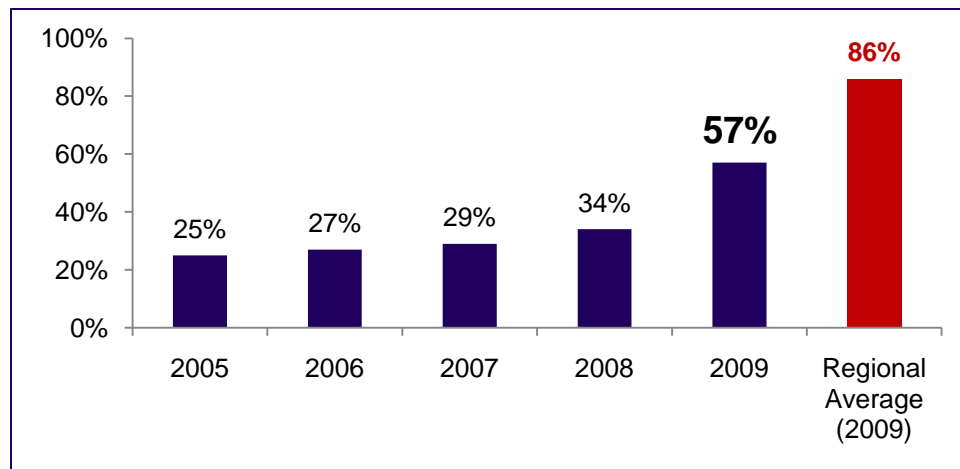
- **Investments** in high speed and next generation networks with open interfaces
- Reduce **costs of infrastructure** deployment through **Infrastructure Sharing and Rights of Way**
- Ensure **fair market competition** and a healthy regulatory environment

Mobile Market

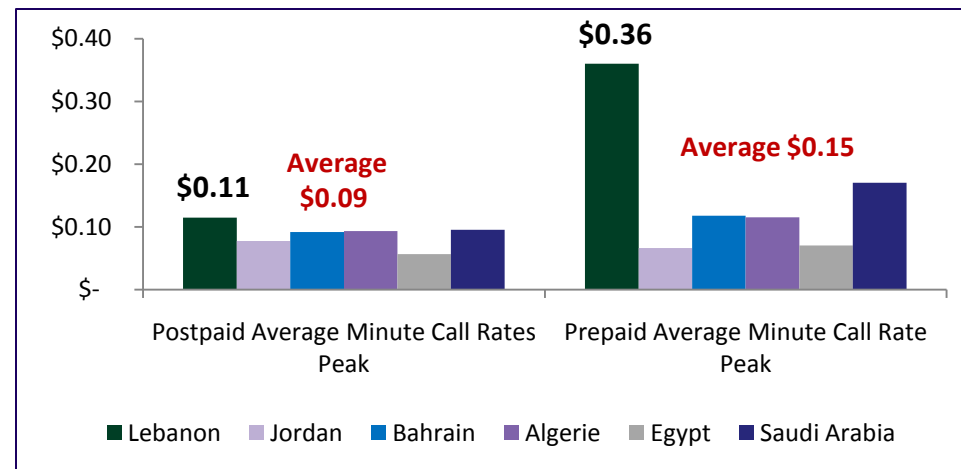


Prices were reduced over 25%, penetration increased, but the mobile market is greatly lagging regionally in penetration, prices and services

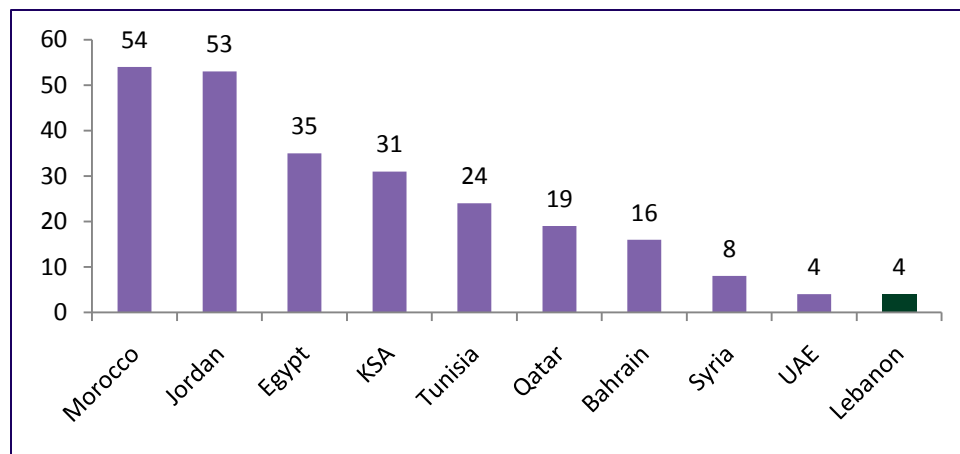
Historical Mobile Penetration in Lebanon



Regional Average Postpaid and Prepaid Prices per minute (excl. VAT, 2009)



Number of postpaid and prepaid plans as of March 2010



3G services as of March 2010

Available		Not Available
Saudi Arabia	Oman	Algeria
Egypt	Qatar	Palestine
Iraq	Libya	Yemen
Morocco	Tunisia	Lebanon
Sudan	Jordan	
Mauritania	Syria	
Kuwait		
UAE		
Bahrain		

The mobile market structure is harmful to the economy and the consumers: prices, offered services, and quality of service



Prices and Offers

- The current Management Agreement's structure **does not enable "Network Managers" to control retail prices – TAXES are a major problem**
- There are **very limited tariff plans** and Network Managers cannot introduce any new packages or bundles without a lengthy administrative procedure requiring in most cases COM decisions
- Lebanon is **ranked 18th over 19 regional Arab countries** in terms of competition and services offered

Quality of Service

- Mobile networks quality is **not up to international standards** (congestion, dropped calls, etc..). This is due mainly to the lack of proper design and optimization
- The current **"Agreements Structure" does not incentivize Network Managers to complete the appropriate expansions** efficiently and on time

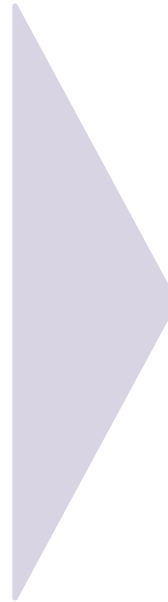
Advanced Services

- Advanced and innovative **Mobile services available in mature markets cannot be supported** by the current mobile infrastructure and 2.75G technology
- **Lebanon is among the very few Arab countries** (Algeria, Palestine and Yemen) not to offer yet **3G** services

Investments in the mobile infrastructure are necessary in order to introduce new advanced technologies and services

CONSUMER AND MARKET NEEDS

- Better Quality of Services (QoS)
- Lower Prices for end users
- Wider range of Advanced Services
- Broader range of Offers
- Wider choice in Service Packages
- Implementation of Innovative Services
- More Competition



INVESTMENTS NEEDS

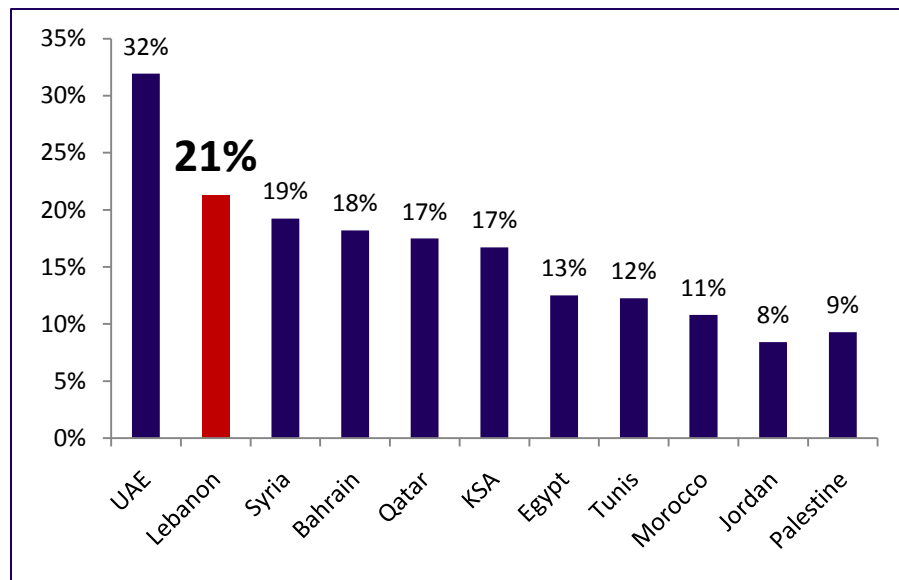
- Investing in the mobile networks to Deploy New Technologies (3G, LTE, ...) and offer advanced data service at high speeds
- Investing in New Services (Platforms, VAS, ...)
- Open up Network Infrastructure for developers' communities to introduce innovative services
- Creating a fully Competitive Environment at the service level

Fixed and International Markets



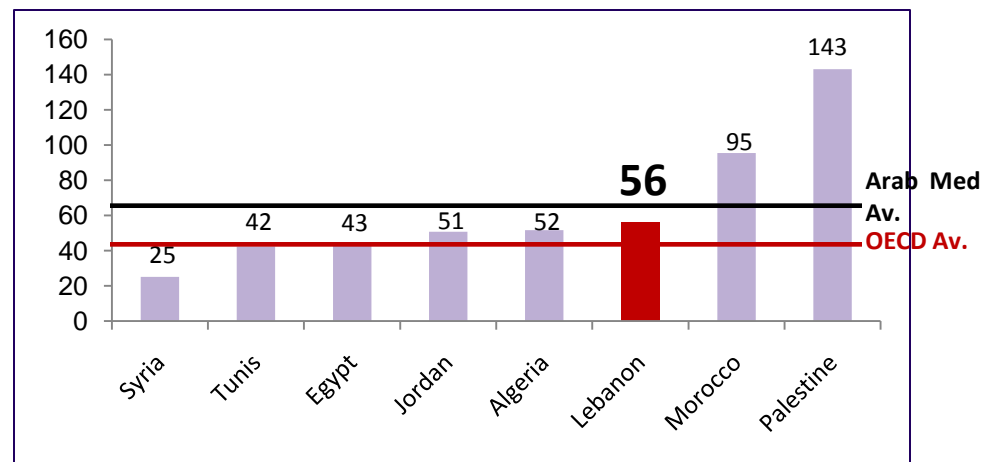
International benchmarks show Lebanon as well positioned regionally in Fixed penetration and pricing; but far from OECD countries averages

Regional Fixed Penetration per population (Dec. 2009)

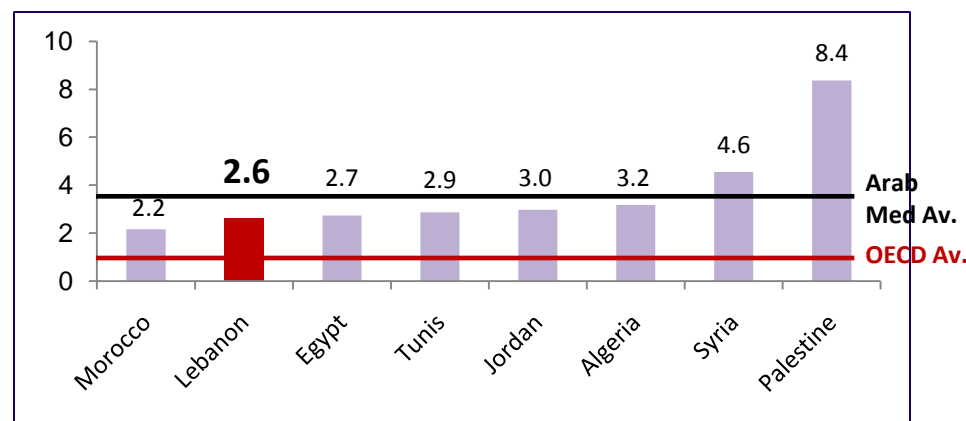


Source: AAG reports, TRA Analysis

OECD Residential monthly basket price* (medium usage – Jan 10)



International residential monthly basket price* (Jan 10)



*Monthly basket prices in USD PPP, VAT included

Source: AREGNET Price Benchmarking Study 2009-2010, TRA Analysis

Fixed market lacks bundled and innovative services as well as the NGN services due to the outdated fixed network architecture (PSTN)

Services

- **Lack of bundled services and self -selection schemes** (such as High line rental/Low call charge products for heavy fixed users and High and a low line rental/high call charge for light users)
- **Lack of NGN services** (SMS over Fixed network, VoIP, MMtel and Video on Demand services)
- **Lack of Intelligent Network (IN) Services** (Toll Free Calling, Collect Calling, Friends & family, one contact services etc..)

Cost

- **High cost related to management and maintenance of current PSTN** network due to large number of Central Offices with respect to total subscriber base
- **Non - Centralized Operation Maintenance** based on unified TMN platform
- **High power consumption and space requirement**
- **High cost of Spare parts/ storage**
- **Large Number of staff for operation and maintenance (O&M)**

Int'l Services and Capacity

- **Limited international capacity** procured by MoT
- **Lack of bundled prices**; international capacity distributed through small units only
- **Lack of redundancy** at the International carrier transit level
- Due to high prices and limited bandwidth, **illegal Voice over Internet Protocol (VoIP) services are widespread** despite large international call tariffs cuts by MoT

To accommodate for technology advances and increased demand for new services, major investments are needed in fixed infrastructure (in national transmission and international capacity)

CONSUMER AND MARKET NEEDS

■ **Competitive environment:**

More competition at the level of applications, content and quality of service

■ **Innovative services:**

Triple play and multi-play such as IP Telephony, HDTV, high speed internet,...

■ **Reduced network cost:**

Lower CAPEX and OPEX (number of network elements will be reduced, lower power consumption and space needed, ...)

■ **Economies of scale:**

The services delivered over one network should be much more diversified (benefits of convergence)

INVESTMENTS NEEDS

- Migrating from traditional fixed network to Next Generation Network (NGN) architecture and services
- Increasing the international capacity and ensuring reliable redundancy
- Investing in new NGN VoIP platforms to offer international services with high QoS
- Investing in **new services and convergent platforms**

MoT PROJECTS:

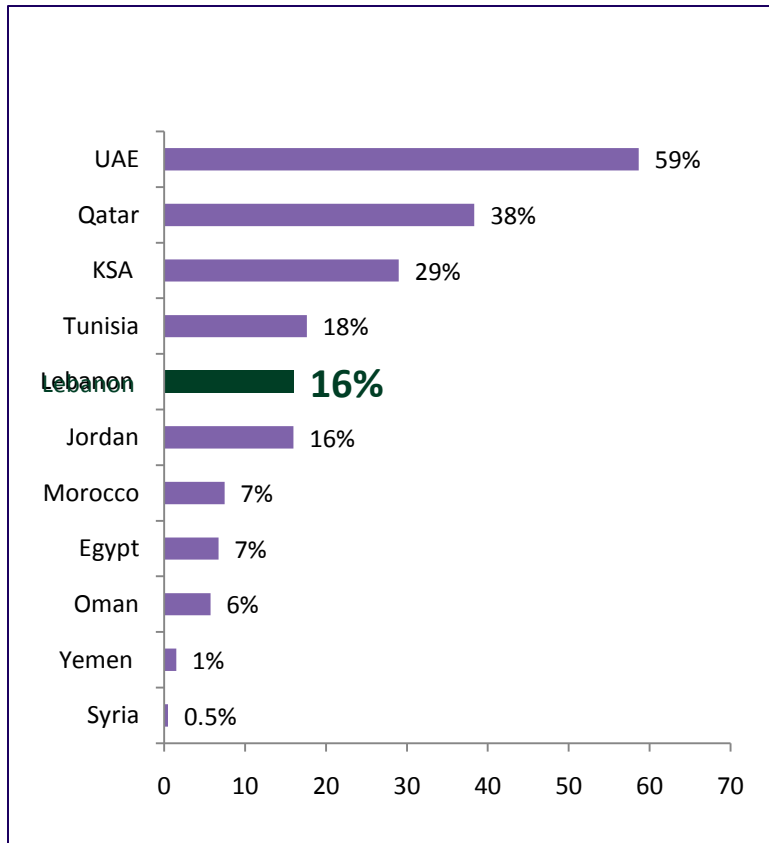
- Network consolidation (starting the deployment of NGN) to reduce 57 main COs to 7
- Participation in the construction of the high capacity submarine cable system (IMEWE) that will provide for Lebanon 24Gbps of international capacity in 2010 and 112Gbps at the completion of the project
- Expansion and modernization of the national transmission network. Laying down two fiber optic super-rings and 39 sub-rings (4400 km of fiber backbone)

Broadband (BB) Market



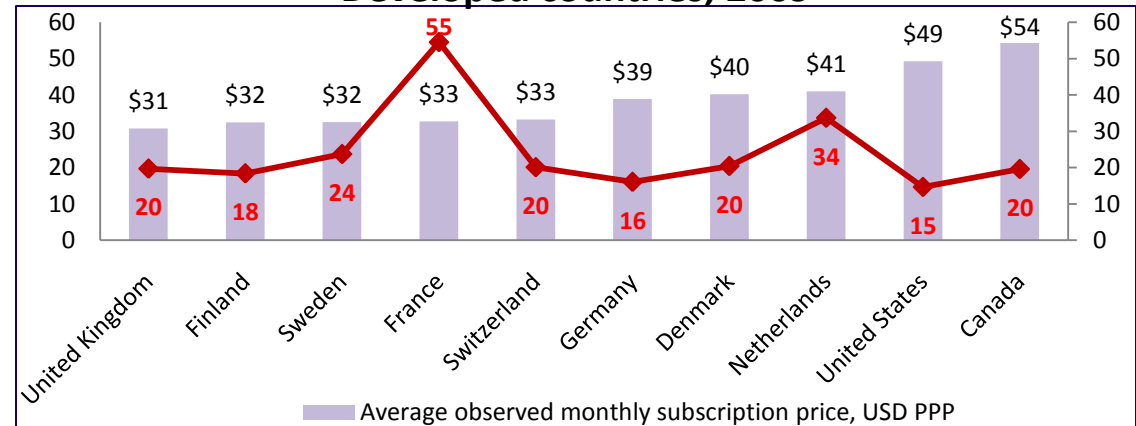
International benchmarks show that Lebanon is far behind in broadband (BB) household penetration, offered speeds and prices

**DSL Household Penetration
Arab Countries 2009**

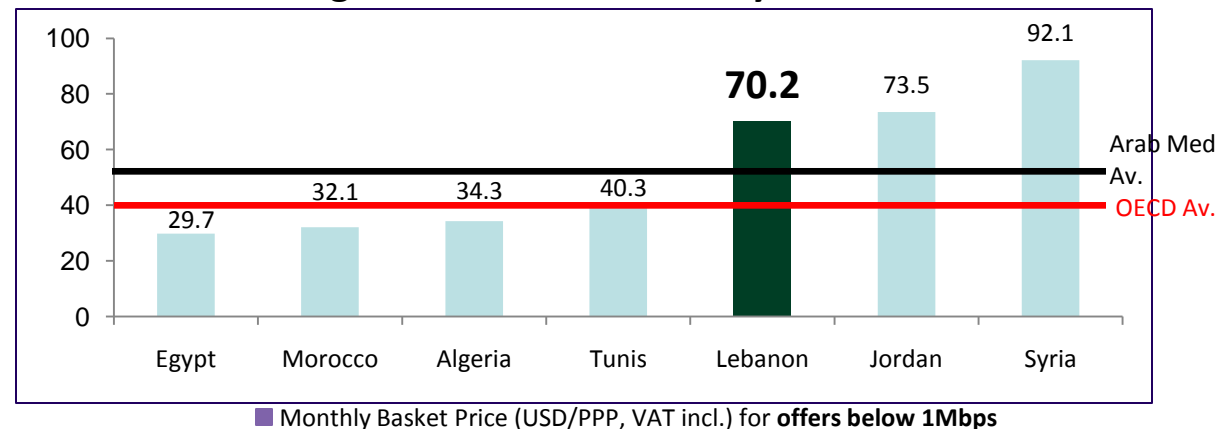


Note: only DSL subscriptions are represented since it constitutes on average more than 95% of Broadband services

**Broadband Offers (Speeds in Mbps and Prices incl. VAT)
Developed countries, 2009**



**Broadband Low Usage Basket
Regional countries, January 2010**



Lebanon should aim at offering advanced BB services at much higher speeds and lower prices than currently available

Service Packages Available in Lebanon

RESIDENTIAL

- For around \$55/month individual subscription to:
 - \$25 for a **256 Kbps** downlink and 64 kbps uplink with a cap of **3 GB (most used DSL plan)**
 - \$15 for very poor quality cable TV subscriptions
 - \$15 for very low usage of Fixed Voice services



BUSINESS

- For around **US\$ 4000/month:**
 - **2 Mbps** downlink and **1 Mbps** uplink Internet access
 - With Service Level Agreement (SLA)



Typical Triple-Play Service Packages

RESIDENTIAL

- For around \$40/month :
 - on average 8 Mbps downlink and 4 Mbps uplink with virtually no cap on usage
 - High speed Internet Access + 100 video Channels (including HD) + unlimited VoIP calls

BUSINESS

- For around **US\$ 500/month:**
 - Up to **10Mbps** for business located in remote areas
 - High speed Internet Access viable for video conference, e-commerce, etc...+ 100 video Channels (including HD) + unlimited VoIP calls

SATURATED TRANSMISSION NETWORK

- The PSTN transmission network topology has limited fiber optic coverage; many suburban and rural areas Central Offices are still lacking fiber optic connections and rely on microwave links
- It does not support high speed internet access, digital media services such as IPTV/ VoD, online gaming, e-commerce, teleconference, etc..
 - MoT recently upgraded its national transmission network (covering only a limited subset of Central Offices) to a 10 Gbits/s Ethernet network. However this network is getting saturated by the increased needs of ADSL subscribers, leased lines and other wired transmission services
 - MoT is planning an expansion and modernization of its national transmission network to lay-down two fiber optic super-rings and 39 sub-rings ensuring a total network length of 4400 km of backbone
- There are no backhaul bundled offers; DSPs and ISPs are still connected by a max of 100 Mbits/s network

Investments in a national NGN backbone network is mandatory to ensure true BB services at affordable prices and to guarantee optimal economic benefits to Lebanon

CONSUMER AND MARKET NEEDS

■ Availability of true broadband services: BB services are currently delivered via

- ADSL
- pre-WIMAX
- wireless technologies

and have modest penetration rates with limited geographical coverage and low speeds

■ Increased competition:

Access-level competition will push prices down and will incentivize providers to offer better quality of service

■ Reduced network cost:

Lower investment cost through the adoption of infrastructure sharing policy or Rights of Way

INVESTMENTS NEEDS

■ Investing in the Broadband infrastructure and completing the local loop full unbundling

■ Investing in wireless Technologies, Content and Services

■ Opening up the competition at least at the access and service levels

■ Investing in new services and convergent platforms

International Experience



Most developed countries are planning to rollout NGN networks; however this might be challenging in this era of economic downturn

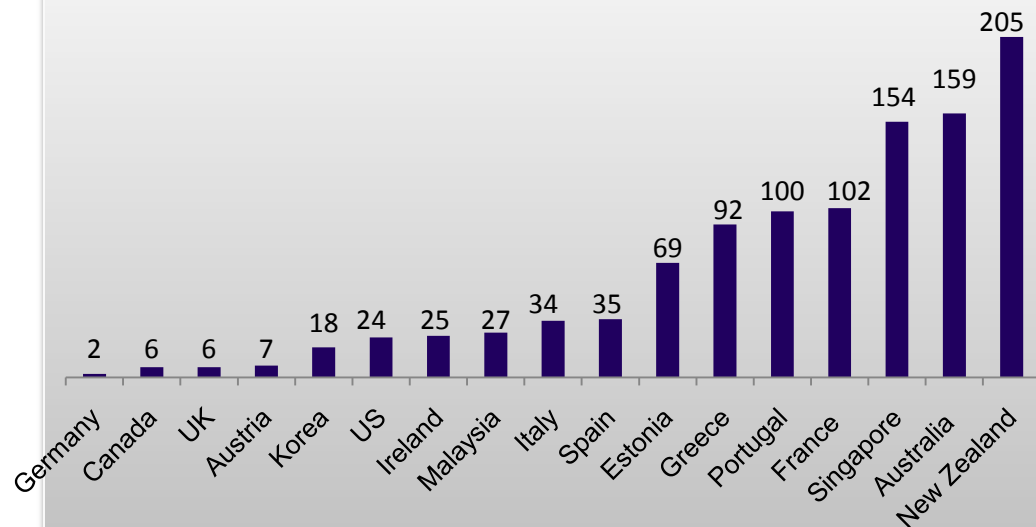
Due to the financial crisis, private sector investment in NGN infrastructure was either stalled or dropped

Governments decided to intervene in the deployment of nationwide NGNs

Economic and social impact of NGN:

- job creation
- global economic growth (GDP)
- social inclusion

Public Investment in Broadband Networks (universalization & NGN) USD per capita 2009



The EC recently issued guidelines on state funding issues in relation to Broadband and NGN networks

- **White Area:** no commercially viable Broadband services, government intervention will not distort competition and EU governments are allowed to directly fund network rollout
- **Grey Area:** only “1 facility provider” is engaged in Broadband services; EU commission will assess the case before approving direct government funding
- **Black Area:** there are “at least 2 facility-based Broadband providers”; there is no market failure and the government direct intervention in terms of funding is not justified

Public intervention in the deployment of broadband and NGN networks

Private investment Initiative

SOUTH KOREA

- Government intervention in broadband rollout is in the form of **loans and tax breaks** rather than direct government funding

FRANCE, GERMANY

- Government **policy is not to fund any broadband infrastructure**
- There are **few local government investments** to provide broadband in “white areas”

Public Private Partnership (PPP)

DENMARK

- Government policy is **not to fund any broadband infrastructure**
- However there are **Public Private Partnerships on regional and municipal level**

JAPAN

- **Major investments in NGN are done by private investors**
- However, government committed in 2009 **to fund broadband deployment in ‘zero broadband areas’** not covered by private companies, this amounts to \$1.9B

MALAYSIA

- Government is **investing in ~ 30% of the incumbent upgrade to NGN**

Government Builds, Owns and Operate

GERMANY

- Germany **secured 141 million Euros for broadband deployment** in rural areas in 2008

AUSTRALIA

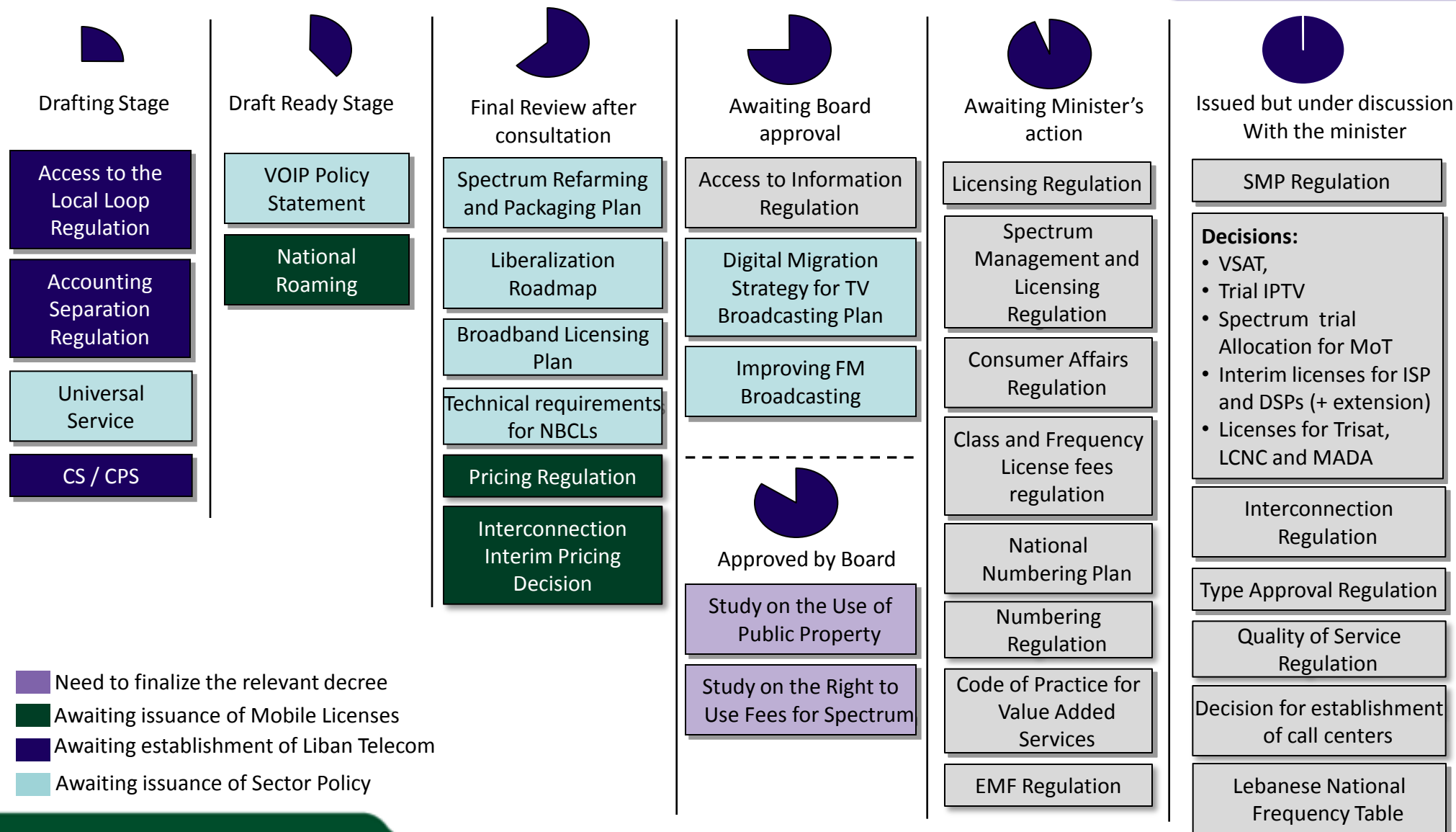
- **New NGN Wholesale Company owned by the Government**
- 50% private participation
- Privatized after 5 years

Note: these figures represent the government commitment of investment over the period of NGN rollout

Tools to ease investments in the telecommunications infrastructure



Since its establishment, the TRA has been working extensively on setting a regulatory framework that would ensure the success of telecommunications liberalization and development



To encourage new investments and ensure a wider coverage of telecom services, Rights of Way and Infrastructure Sharing should be introduced as efficient regulatory tools

RIGHTS OF WAY (ROW) INCLUDING ACCESS TO THE DUCTS

- Based on Article 35 of Law 431 and following a closed consultation with various governmental entities, TRA has prepared a **draft decree for the “RoW” including the proposed procedure and charges** to be submitted to the Minister for approval and recommendation to the CoM
- Ensuring **“RoW” and “access to the ducts” will incentivize new entrants by reducing sunk cost significantly**
- **RoW will represent important proceeds** to the Government and will ensure an optimal and efficient use of existing unused resources

INFRASTRUCTURE SHARING (IS)

Benefits from the implementation of Infrastructure Sharing:

- **Reduces CAPEX** related to infrastructure deployment
- **Reduces barriers to entry**, increases competition and lowers prices to end-users
- **Reduces waste** caused by infrastructure redundancy and duplication (power, antennas, urbanism...)

How to increase affordability?

Distributing and subsidizing of low cost terminals in rural areas

Promotion of digital literacy programs via local municipalities

Incentivizing SMEs by decreasing taxes on businesses in ICT industry

How to increase demand/usage?

Development of e-government, e-commerce, e-education, e-health, ...

Development of new content and media: support content and media development in local languages

Deployment of innovative services: interactive IP-TV, tele-learning, tele-presence, ...

Thank you

