



Republic of Lebanon
Telecommunications
Regulatory Authority

Economic Crisis Recovery Through Investing in Telecommunications

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Year 2008 Economic Crisis Impact on CMT

- Communications, Media, and Technology (CMT) firms collectively shed \$3.1 trillion in market value in 2008—a 43% drop - all gains made since 2003 (Source: Oliver Wyman)
- The direction is for more regulatory role in the financial markets and less regulatory constraints on the telecom sector
- The MENA region's telecom development lags other regions of the world in several critical areas:
 - Foreign Direct Investments (FDI) amounted to just 0.07% of regional GDP, compared to 0.47 % for Latin American and the Caribbean
 - Telecom revenues contribute just 2.1 % to the region's GDP, compared to 3.5 % for the world as a whole
 - Just 0.8 % of the population has signed up for broadband, compared to 4.2 % worldwide (Source: World Bank, 2008)

Year 2008 Economic Crisis Impact on CMT (Cont.)

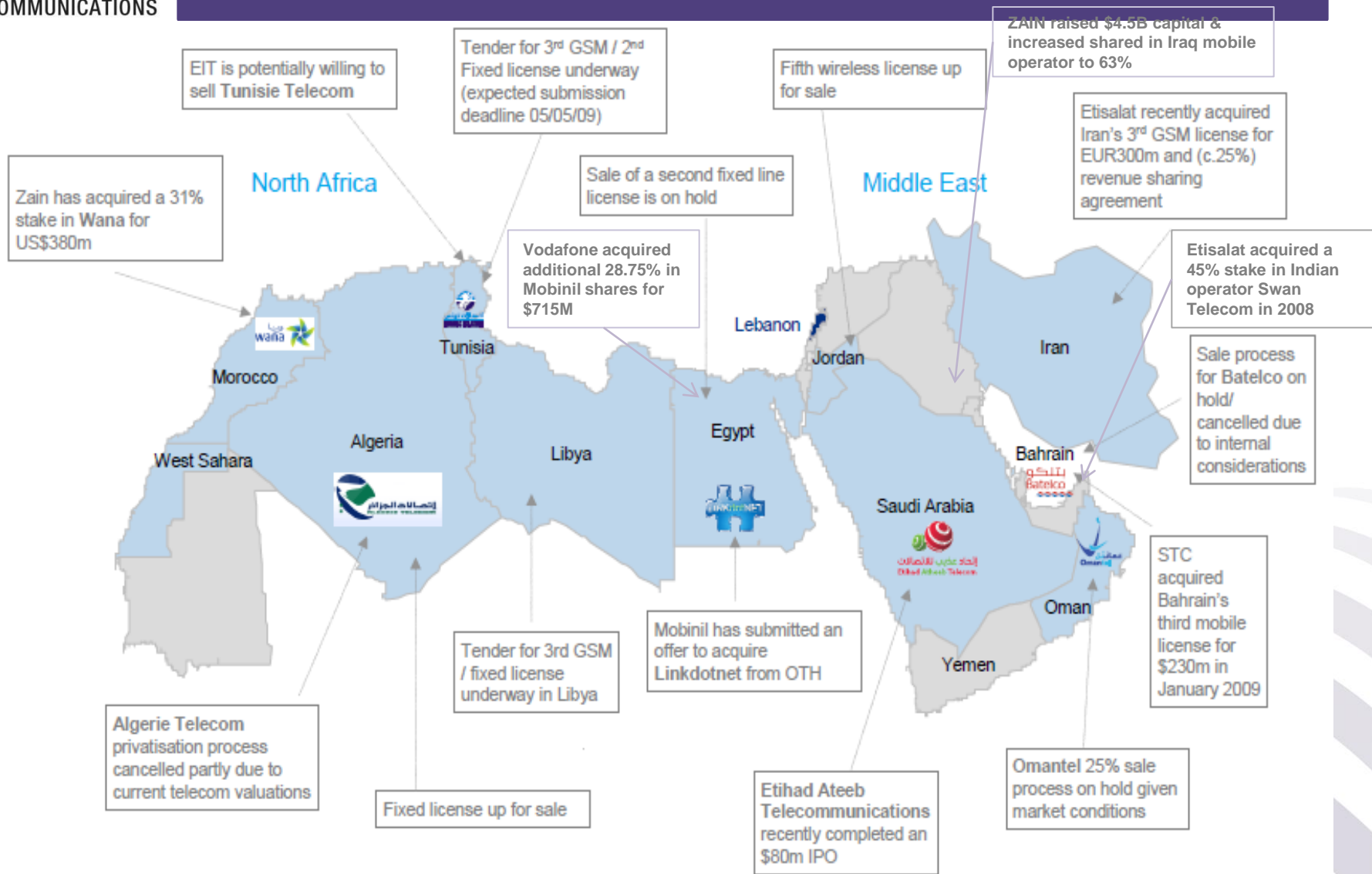
Trends & observations

- Companies in emerging-markets continue to gain an increasing share of the total CMT market (MENA Mobile market >\$100B in 2008)
- Fixed and mobile communications companies, particularly those in emerging markets, continue to gain a larger share of the market
- The mobile Internet surge recasts the “information super-highway” as an increasingly wireless infrastructure - with half of all data revenues for mobile carriers now coming from Internet access
- Companies with “digital” in their DNA are moving into new sectors and markets, as all media become available on all devices (ex. Apple)
- Many technology companies with less capital to expend are looking to share appropriate assets and collaborate with competitors
- “Reverse globalization” has started: cash-rich, customer-focused companies based in emerging markets have entered mature markets (Ex. Zain, Etisalat, etc)

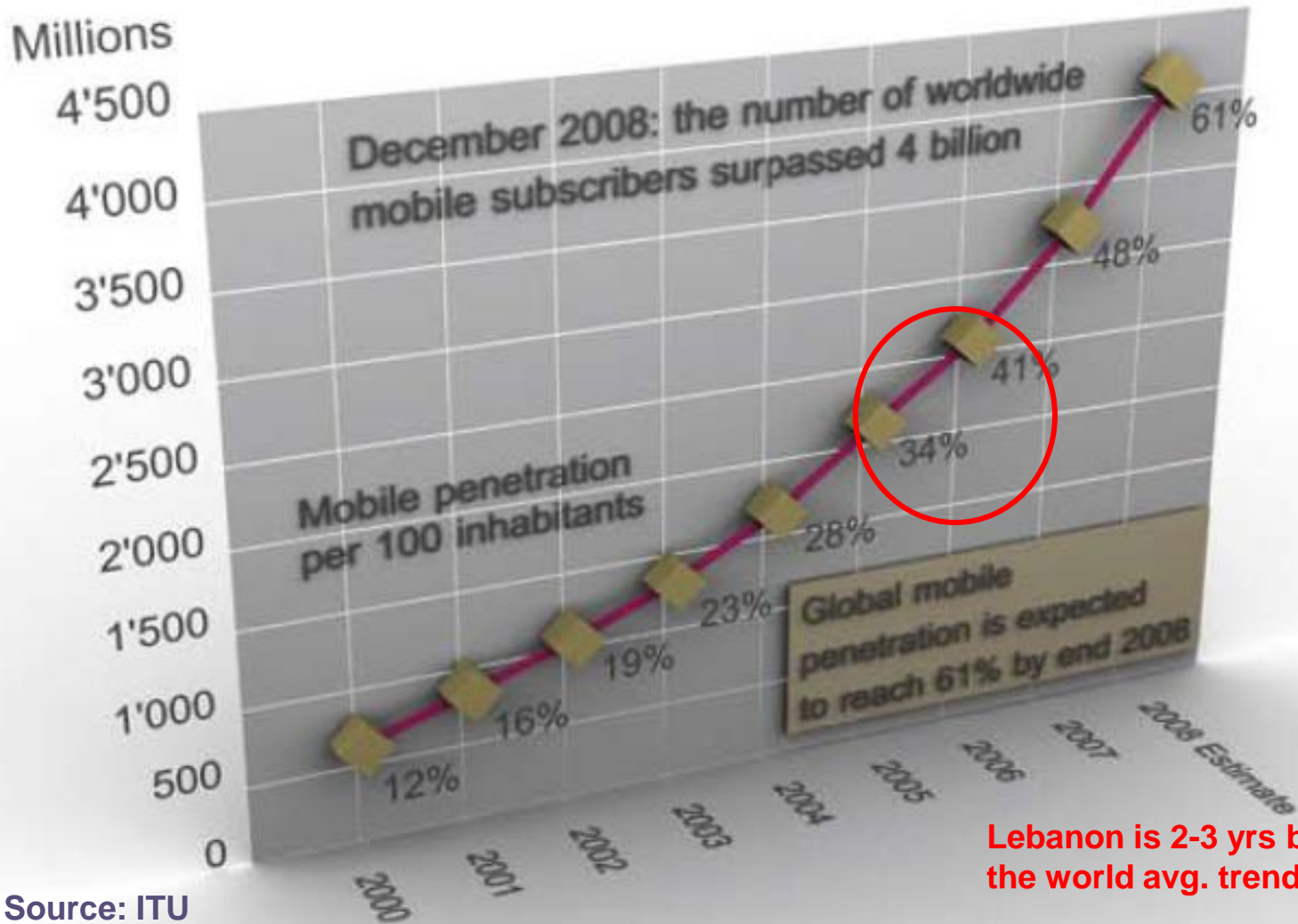
Year 2008 Economic Crisis Impact on CMT (Cont.)

- Economic crunch happened when convergence in services and technologies across the markets was happening and when investments in NGN & NGA infrastructure are needed most
- Investments in mobile broadband are less costly than in fixed broadband but both are vital and safe
- M&A remained active in the recent months despite the crunch
- The MENA region continues as a great potential and a safe investment considering the growth rates and the high ARPU
 - Mobile markets had an eight year 24% average annual growth. In 2008 exceeding 4 Billion mobile subs & 61% worldwide penetration rate
 - Lebanon is still 2-3 years behind the curve on 2G and more on 3G

Recent MENA Outlook



Growth in Worldwide Mobile Subscribers, 2000-2008



Source: ITU

Lebanon is 2-3 yrs behind the world avg. trend

Network Technology Can Create Immediate Jobs...

Investing in broadband and collaboration tools

- Installing ICT networks is labor-intensive at the initial construction, manufacturing, and installation stage, creating jobs in cabling, network design, installation, network administration, and digital content development

ICT, broadband, and smart energy efficiency measures

- Can be swiftly deployed
- Have immediate Return On Investment (ROI) from cost savings and reduced energy consumption

Network Technology Creates Durable Jobs

A US\$5 billion increase in broadband investment directly creates 100,000 new jobs in telecom and IT in the year in which spending occurs

Injecting US\$30 billion into U.S. network infrastructure in 2009 would create 949,000 jobs – 525,000 in businesses with fewer than 500 employees, 262,000 in Broadband

ICT & jobs

For every 1 % increase in a state's broadband penetration, employment is projected to increase by 0.2-0.3 %.

That increase is associated with 300,000 more jobs

In South Africa, Gauteng province estimates that deployments of high-speed broadband will contribute to a 5.5 percent increase in GDP, creating 650,000 jobs

Broadband Boosts Long-term, Sustainable Economic Growth

- Each US\$1 invested in Broadband infrastructure increases GDP by US\$10 (Source: Commerce and Brookings Institute models)
- A U.K. study found that businesses with access to broadband (BB) were 31% more productive than businesses without access to BB (Source: OFCOM & Europe Economics (2006))
- In the US, economic studies have shown that the increase in a local economy was 10 times the cost of installing broadband
- The economic impact will be felt particularly among small to mid-sized enterprises
- The Brazilian Ministry of Planning estimated that a network-enabled development agenda would improve efficiency in the economy estimated at 1.5 % of GDP

The UK's Digital Road to Recovery

by Jonathan Liebenau, Robert Atkinson, Patrik Kärrberg, Daniel Castro and Stephen Ezell | April 2009

Spurring investments in ICT infrastructure not only can provide an important short-term boost to the UK economy; it also can lay the groundwork for long-term economic growth, international competitiveness, and significant improvement in quality of life.

Rising unemployment in the UK threatens the welfare of hundreds of thousands of individuals, and exacerbates the current economic crisis. Spurring investment in the UK's infrastructure is an effective immediate strategy to compensate for the downturn. However, while investments to improve the country's traditional physical infrastructure (roads, bridges, sewer systems, etc.) are necessary and important, investments in certain parts of the UK's information and communication technology (ICT) resources, or digital infrastructures, will have a greater positive impact on jobs, while at the same time laying the groundwork for sustained productivity and innovation.

Network Technology Provides Productive Infrastructure to Boost Long-term Growth

Knowledge-led infrastructure investments

- Include smart electricity grids or connected urban transportation
- Enable stronger productivity growth and efficient, resilient, and well-regulated markets

Easier access to more and better information

- Drives productivity growth
- Allows other economic inputs to be used more efficiently

Setting up geographical pockets of advanced broadband capabilities

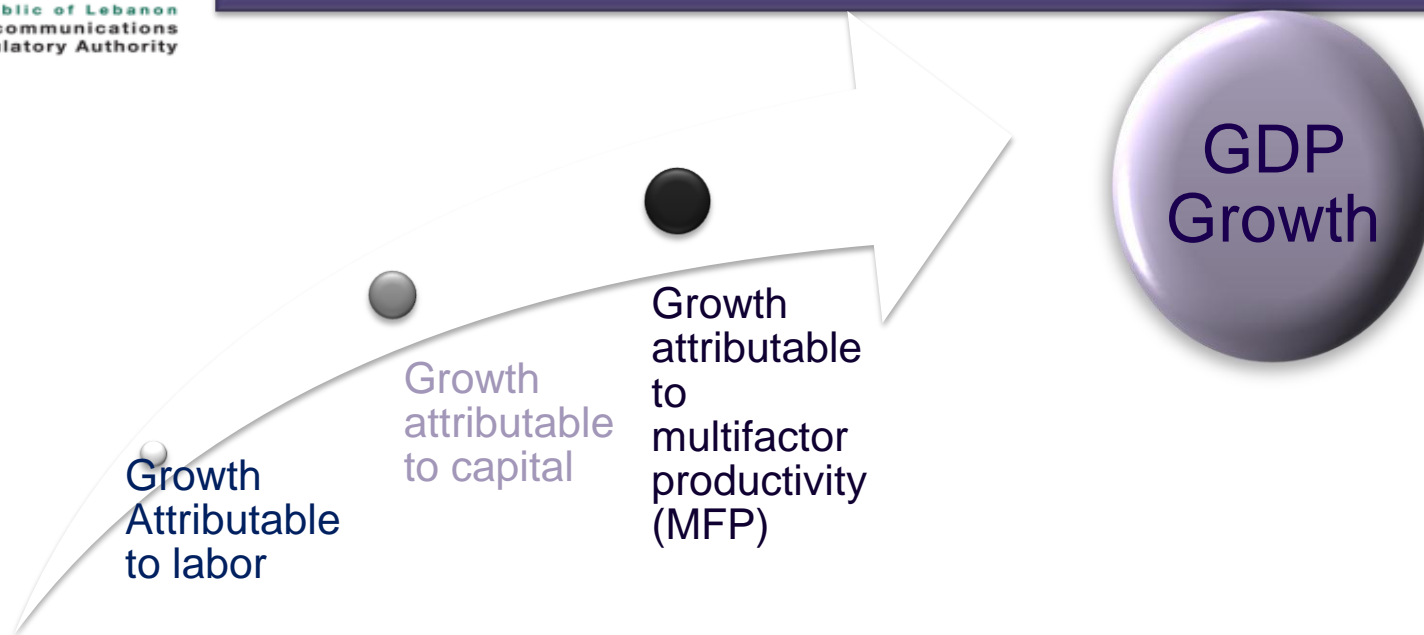
- Enhances export market share growth by promoting clustering or new businesses
- Attracts high-skill, high productivity, knowledge workers, and research institutions, while also supporting dynamic academic establishments

ICT investment and infrastructural projects

- Can be channeled immediately into a wide range of infrastructural projects and sectors
- Building broadband networks into schools, public buildings, and along highways creates immediate jobs, long-term benefits and improves quality of life

Source; Cisco regulatory study, 2008

Broadband Boosts Long-term, Sustainable Economic Growth



- ▶ Multifactor Productivity (MFP) measures how well labor and capital are combined
- ▶ Gains from improved collaboration, information, and knowledge sharing impact GDP directly by increasing MFP
- ▶ Knowledge use and sharing enhance output beyond what is possible from the mere addition of workers and machines, by boosting MPF and driving long-term, sustainable economic growth

Information is the Long-term Platform for Growth

Joint public-private investment in a broadband backbone promote long-term productivity growth, allowing other economic inputs to be used more efficiently

Broadband allows for the pervasive reuse of information:

- Reducing businesses' and customers' costs of acquiring data and making transactions

Broadband and connectivity:

- Result in productivity gains from knowledge sharing and developing knowledge and intellectual property derived from this information

Broadband and connectivity is particularly effective in public infrastructure and investment projects:

- Electronically stored healthcare records can guide optimal treatment strategies

The value of connectivity increases as broadband becomes ubiquitous:

- Tools such as mobile phones need to be linked to the people or systems that can gain the most value from this information

Source; Cisco IBSG study, Feb 2009

Information Alleviates Market Failures

Knowledge is a public good, and access to information is a right

1

Imperfect and asymmetric information can lead to market failures and distortions, to mispricing, and misallocation of investments

2

• Providing information increases the incentives for businesses to invest in the research, development, and deployment of efficient technologies

3

By unleashing private investment, this will further contribute to a fiscal stimulus

4

Efficient supply and distribution of real-time networked information deliver opportunity for savings

Source; Cisco IBSG study, Feb 2009

Summary of the main regulations and decisions prepared by the TRA

Drafting Stage

Access to the Local Loop Regulation

Accounting Separation Regulation

Universal Service

CS / CPS

Draft Ready Stage

VOIP Policy Statement

National Roaming

Code of Practice for Value Added Services

Study on the Right to Use Fees for Spectrum

On going Consultation

Study on the Use of Public Property

Closed Consultation

Spectrum Refarming and Packaging Plan

Improving FM Broadcasting

Digital Migration Strategy for TV Broadcasting Plan

Access to Information Regulation

Final Review (TRA Board)

Liberalization Roadmap

Broadband Policy Statement

Licensing Regulation

Pricing Regulation

Interconnection Interim Pricing Decision

Spectrum Pricing Opinion

Spectrum Management and Licensing Regulation

Consumer Affairs Regulation

Issued

Significant Market Power Regulation

Decisions:

- VSAT,
- Trial IPTV,
- Spectrum 900Mhz trial Allocation for MoT / OGERO
- 1800 for two GSM op.
- Interim license to DSPs

Interconnection Regulation

Type Approval Regulation

Quality of Service Regulation

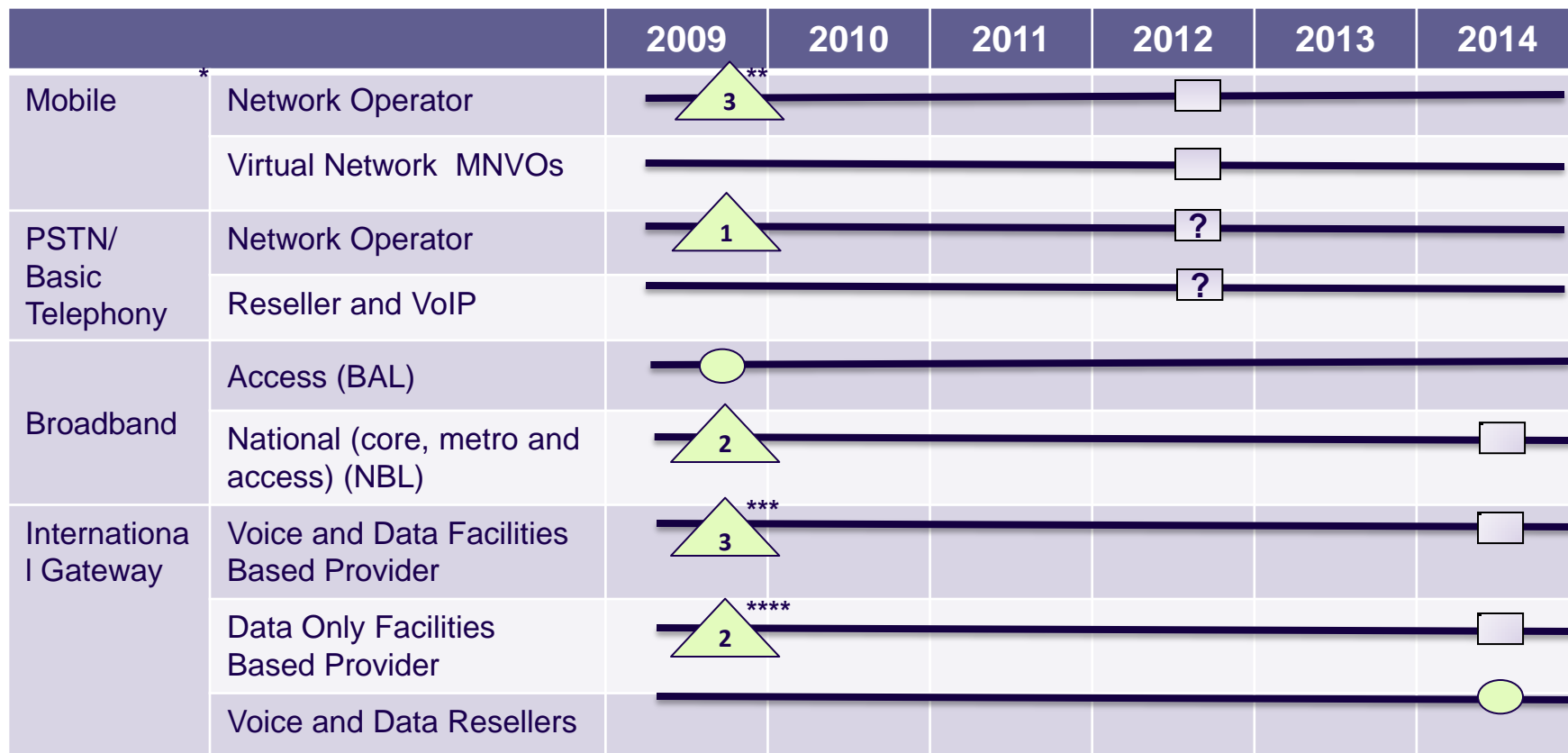
Decision for establishment of call centers

Lebanese National Frequency Table

National Numbering Plan

Numbering Regulation

The TRA is minded to liberalize telecom markets and provide a solid regulatory framework to attract investors



 Open
licensing

 Market
Review

 License
Award

* The privatization of the mobile sector will depend on the regional and international financial markets conditions

** Two mobile operators and Liban Telecom

*** Two mobile operators and Liban Telecom

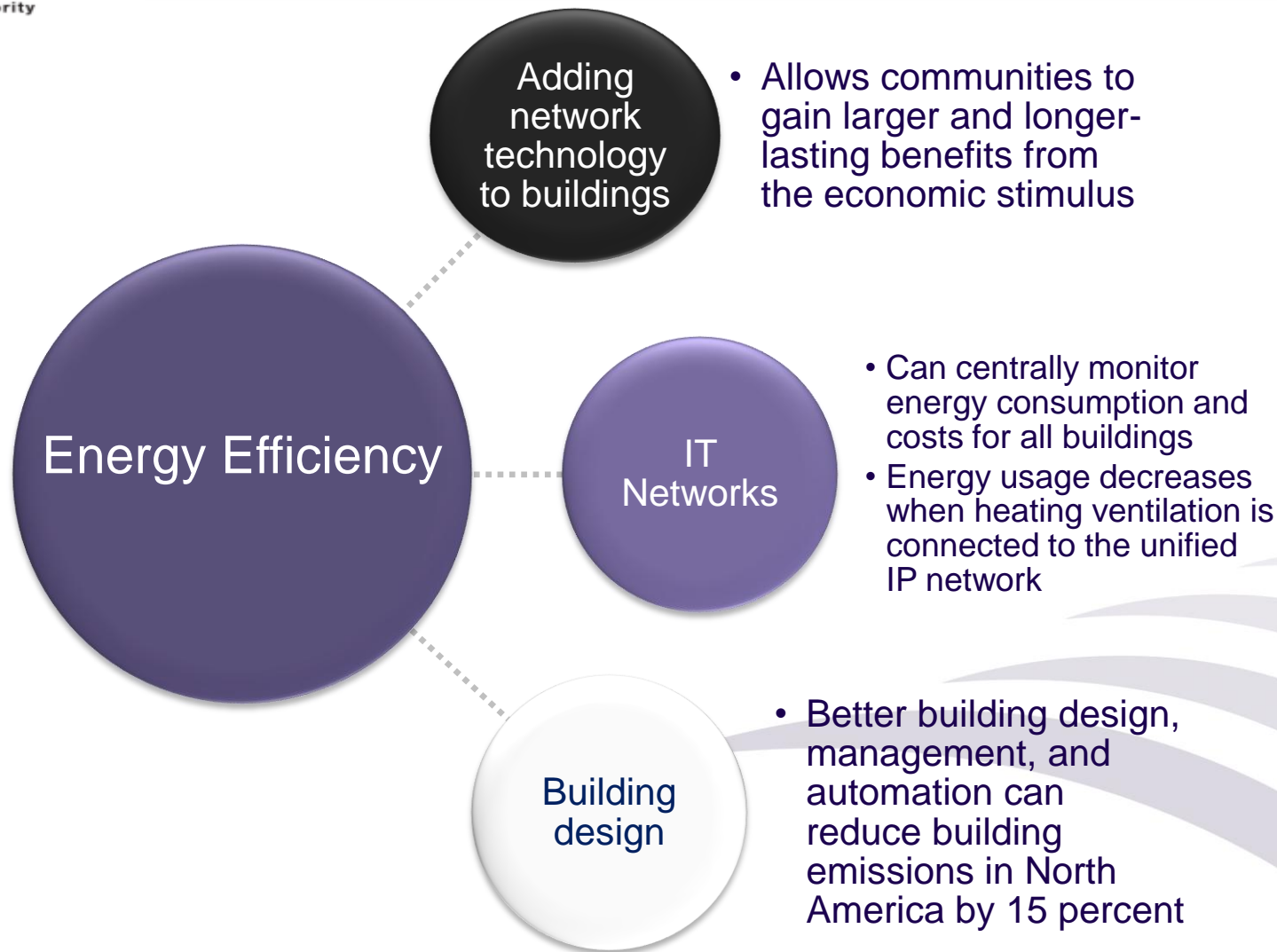
**** Two National Broadband Licenses, **subject to CoM's decision**

Role of Telecom Regulations

Booz & Co. recommends six (6) strategies for policy makers and regulators in an effort to preserve the telecom sector resilience and to leverage telecom as a catalyst in the economy

- 1. Accelerate sector governance and regulatory reform**
- 2. Review the schedules for privatization and liberalization**
- 3. Reduce operators' direct financial obligations**
- 4. Incentivize infrastructure sharing and traffic syndication**
- 5. Invest in national broadband infrastructure**
- 6. Grow ICT literacy among users and the workforce**

Smart Management and Energy Efficiency in Buildings



Infrastructure & Network Sharing Facilitate Broadband Infrastructure Rollout

- The ICT industry is a vital sector underpinning many other sectors and driving economic growth
- Countries should be seeking to address the economic downturn by introducing financial stimulus packages that fund broadband network investments and could also require these networks to be shared. This will
 - bring down costs of network deployment, and
 - allow more efficient use of government funds or incentives
- Infrastructure & network sharing looks set to become an integral part of the changing regulatory environment in order to promote widespread and low-cost broadband access

Infrastructure & Network Sharing Facilitate Broadband Infrastructure Rollout

TRA Objectives

Allow competition in the sector

Make use of the existing telecom infrastructure and other utilities infrastructure – and should allow efficient and fast implementation

They should also be setting fees for use of the public properties – should encourage municipalities to invest in such infrastructure in order to raise revenues and minimize disruption for citizens

Infrastructure Sharing Facilitate Broadband Infrastructure Rollout

Lebanon's TRA Actions

Drafted a decree providing a clear framework for the use of public properties by License operators including the telecom ducts that are under the control of the ministry of telecommunications for the time being and other utilities infrastructure

Suggested clear formulas for setting reasonable prices for the usage of public properties

Prepared the regulatory framework for Infrastructure sharing between telecom operators

TRAs Should Reduce Barriers on Initial CAPEX

- The TRAs should be looking at different market mechanisms to reduce direct license fees using more flexible approaches including
 - Revenue sharing models
 - Hybrid bid & revenue sharing, and
 - Coverage-based incentives



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Conclusions

- The financial crisis is definitely affecting **CMT markets worldwide** but the sector is in better **shape** today than it was after the dot.com crisis of 2001/2002
- Emerging and developing markets, where growth is still soaring, are less affected than developed markets
- The direction should be for more regulatory role on the financial markets and less regulatory constraints on the telecom sector
- The Telecom Regulators must take measures to
 - Accelerate telecom sector governance and regulatory reform and update the privatization and liberalization schedules to ensure stable regulatory environment
 - Attract new investments in telecom to expedite economic recovery and **assess the possibility of reducing barriers on initial CAPEX and incentivize Infrastructure Sharing**
- Policy Makers' (and Governments) should seriously look into common regulations and must understand the value that telecom (with Services and Applications) bring to the economy and their intervention could prove positive to ensure that **liberalization takes place & new entrants are faced with less constraints on network IS to secure more investments in NGN & NGA infrastructure and**
 - Invest in national broadband infrastructure
 - Grow ICT literacy among users and the workforce



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Thank you!!

Some Sources of Information

1. Executive Summary of **Oliver Wyman's Communications, Media and Technology 2009 State of the Industry**
2. Rapid, Sustainable Economic Recovery Providing a Technology Infrastructure for Long-term Growth - **Cisco – Feb 2009**
3. **The Power of Telecom - A Catalytic Force in the Economic Downturn– Booz & Co.**
4. Telecom Market Update – TRA – March 2009
5. The UK's Digital Road to Recovery - **by Jonathan Liebenau, Robert Atkinson, Patrik Cärrberg, Daniel Castro and Stephen Ezell | April 2009**