

# Telecommunications markets indicators in the Kingdom of Bahrain

June 2009



هيئة تنظيم الاتصالات  
Telecommunications Regulatory Authority

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# Introduction

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The collection, analysis and dissemination of accurate and timely market information significantly enhances the design of effective, proportional and efficient market regulation.

Unless specified, the analysis presented in this Report is based on data collected from licensed operators by TRA.

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This is the third Telecommunications Markets Indicators Report. This report covers a large range of telecommunications services indicators, such as the number of subscribers, penetration rates, calls usage and telecommunications revenues.



<sup>1</sup> Note that Person is defined in the Telecommunications Law to mean any natural or artificial person or public authority.

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# Services offered by Active operators

| Operator Name                   | National Fixed | International Calls | Mobile   | Internet  | Leased line | Other data service <sup>1</sup> |
|---------------------------------|----------------|---------------------|----------|-----------|-------------|---------------------------------|
| 2Connect                        | √              | √                   |          | √         | √           | √                               |
| Batelco                         | √              | √                   | √        | √         | √           | √                               |
| BT Solutions LTD                |                |                     |          |           |             | √                               |
| Business Communication Networks |                | √                   |          |           |             |                                 |
| Etisalcom                       | √              | √                   |          | √         | √           | √                               |
| Fakhro IT Services              |                | √                   |          |           |             |                                 |
| Fastelco ( TeleGulf)            |                | √                   |          |           |             |                                 |
| Kalaam Telecom                  | √              | √                   |          | √         | √           | √                               |
| Light Speed                     | √              | √                   |          | √         | √           |                                 |
| Mena Telecom                    | √              | √                   |          | √         |             |                                 |
| Northstar                       |                | √                   |          | √         |             |                                 |
| Nuetel Communications           | √              | √                   |          | √         | √           |                                 |
| Orbit                           |                | √                   |          | √         |             |                                 |
| Viacloud                        |                | √                   |          |           |             |                                 |
| Zain (Bahrain)                  | √              | √                   | √        | √         |             |                                 |
| <b>Total</b>                    | <b>8</b>       | <b>14</b>           | <b>2</b> | <b>10</b> | <b>6</b>    | <b>5</b>                        |

<sup>1</sup> For example, National frame relay service, International managed leased line services and International MPLS/IPVPN service.

# Main telecommunications indicators

| Indicator                                                          | 2005    | 2006    | 2007      | 2008                   | Compound Annual Growth Rate - CAGR |
|--------------------------------------------------------------------|---------|---------|-----------|------------------------|------------------------------------|
| Population                                                         | 888,824 | 960,425 | 1,039,297 | 1,101,230 <sup>1</sup> |                                    |
| Number of households                                               | 113,441 | 116,533 | 158,823   | 167,079 <sup>2</sup>   |                                    |
| <b>Fixed line services</b>                                         |         |         |           |                        |                                    |
| Number of fixed lines                                              | 193,520 | 194,196 | 203,541   | 220,386                | 4%                                 |
| Fixed line penetration                                             | 22%     | 20%     | 20%       | 20%                    |                                    |
| Number of residential fixed lines                                  | 121,918 | 122,343 | 116,951   | 130,121                |                                    |
| Percentage of households which have a fixed line                   | n/a     | n/a     | 74%       | 78%                    |                                    |
| Domestic minutes originated from a fixed line (in million minutes) | 788     | 894     | 972       | 1,021                  | 9%                                 |
| <b>Mobile services</b>                                             |         |         |           |                        |                                    |
| Prepaid subscribers                                                | 635,277 | 756,268 | 923,702   | 1,210,163 <sup>4</sup> | 24%                                |
| Postpaid subscribers                                               | 131,826 | 151,165 | 192,277   | 230,619                | 20%                                |
| Total mobile subscribers                                           | 767,103 | 907,433 | 1,115,979 | 1,440,782              | 23%                                |
| Mobile penetration as a % of total population                      | 86%     | 94%     | 107%      | 131%                   |                                    |
| Domestic minutes originated from mobile (in million minutes)       | n/a     | n/a     | 1,571     | 1,834                  |                                    |
| <b>Internet services</b>                                           |         |         |           |                        |                                    |
| Dial-up subscribers                                                | 28,867  | 21,466  | 6,425     | 4,508                  | -46%                               |
| Broadband subscribers                                              | 21,432  | 38,628  | 73,563    | 109,994                | 72%                                |
| Total Internet subscribers                                         | 50,299  | 60,094  | 79,988    | 114,502                | 32%                                |
| Internet penetration                                               | 6%      | 6%      | 8%        | 10%                    | 19%                                |
| Broadband penetration                                              | 2%      | 4%      | 7%        | 10%                    | 71%                                |
| Number of residential fixed broadband subscribers                  | 18,764  | 34,858  | 62,699    | 85,419                 | 66%                                |
| Percentage of households that have fixed broadband                 | 17%     | 30%     | 39%       | 51%                    |                                    |
| <b>International Traffic (in million minutes)</b>                  | 240     | 363     | 642       | 954                    | 58%                                |
| <b>Telecommunications revenues (BD in million)</b>                 | 235     | 253     | 285       | 303                    | 9%                                 |
| <b>Number of employees in the telecommunications sector</b>        | 2,216   | 1,942   | 2,380     | 2,470                  | 4%                                 |

**Notes:**

1- The population head count is sourced from the Central Informatics Organization. 2008 population is based on TRA estimation.

2- The Central Informatics Organization has not yet revised the number of households; therefore TRA has extrapolated the number of households for the year 2007 and 2008 based on 2006 data for its own analysis.

3- The number of subscribers refers to the end of the year and the number of minutes represents the cumulative minutes during the year.

4- Figures based on an estimate due to Batelco technical limitations on actual measurement.

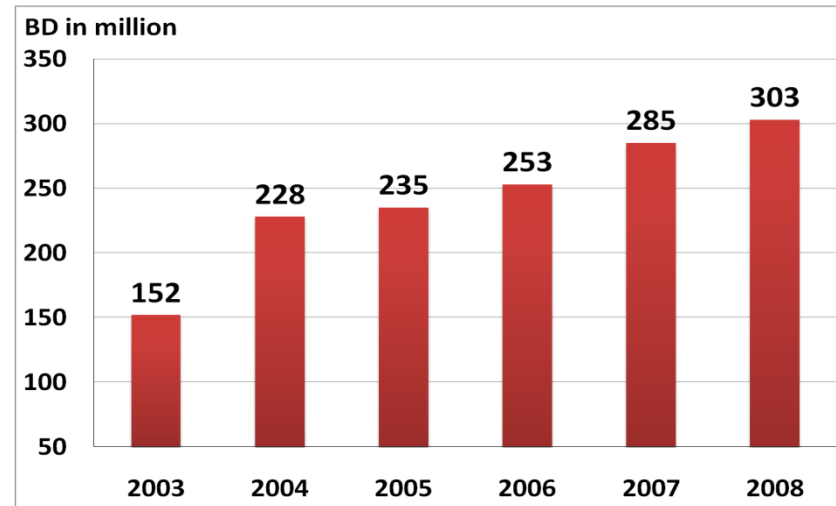


# Revenues in the Telecommunications Sector

- **6.3% growth in revenues between 2007 and 2008**
- **7% Compound annual growth rate between 2004 and 2008**
- **Revenues have doubled since market liberalization in 2003.**

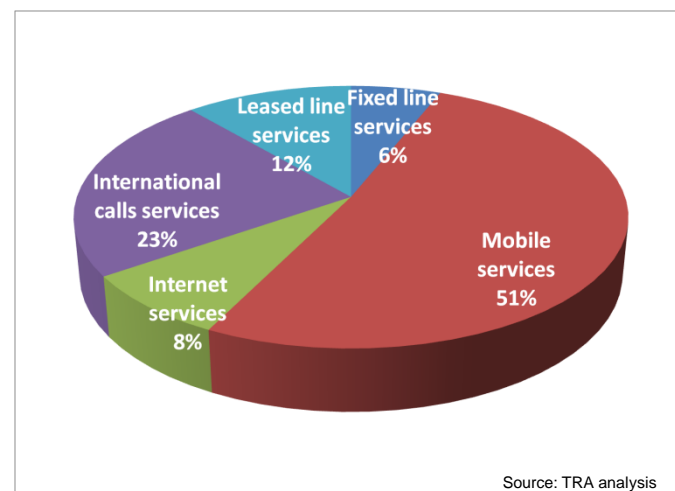
- **Mobile services revenues represent the majority of the telecommunications services revenues**

**Growth in the telecommunications sector revenues (2003 – 2008)<sup>1</sup>**



Source: TRA analysis

**Estimated distribution of telecommunications revenues in 2008<sup>2</sup>**



Source: TRA analysis

**Note:**

<sup>1</sup> Source: Annual gross turnover of licensees.

<sup>2</sup> Fixed lines revenues: include subscription revenues, monthly rental and domestic calls revenues.

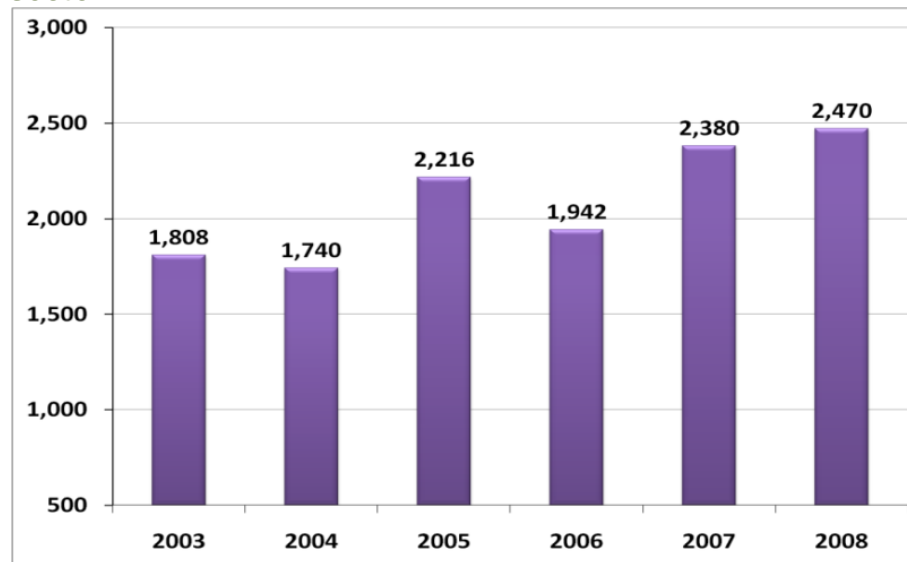
Mobile revenues: include subscription revenues, monthly rental, domestic calls revenues and mobile broadband revenues.

Internet revenues: include subscription revenues, monthly rental revenues and above usage revenues.

# Employment in the Telecommunications Sector

- 4% growth in number of employees between 2007 and 2008
- 37% growth since liberalisation

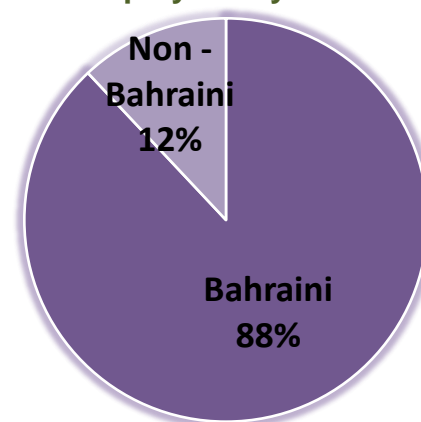
Growth in the number of employees in the telecommunication sector <sup>1</sup>



Source: TRA analysis

- The sector achieves a high degree of Bahrainisation (88%) compared to other sectors (e.g. Bahrainisation in the Banking and Financial Sector stands at 72%)

Distribution of employees by nationality



Source: TRA analysis



<sup>1</sup> Operators exclude the staff of the services companies working in the telecommunications sector.

# Fixed telephony services

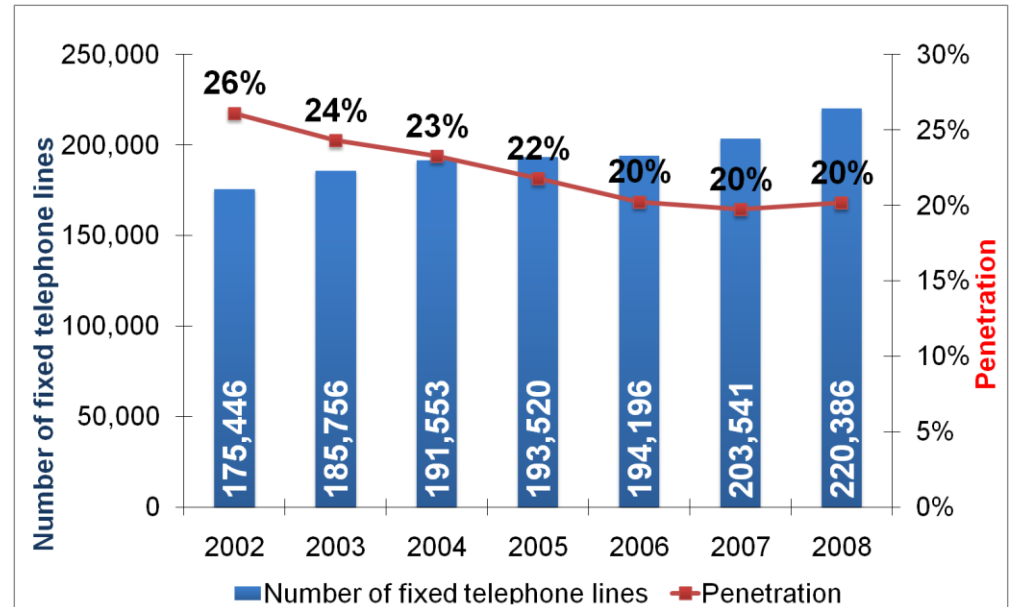
- By the end of 2008, there were 220,386 fixed lines compared to 203,541 in 2007.
- Fixed telephony lines consist of 206,301 PSTN and 14,085 Wireless.
- The number of fixed lines grew by 8% between 2007 and 2008 due to the growth of fixed wireless.
- Although the number of telephony lines is increasing, fixed lines penetration is declining slightly. This is due to the rapid increase in the population.

## Number of fixed telephony lines

| Number of fixed telephone lines | 2002    | 2003    | 2004    | 2005    | 2006    | 2007    | 2008    | Growth 2008-2007 |
|---------------------------------|---------|---------|---------|---------|---------|---------|---------|------------------|
| Fixed PSTN                      | 175,446 | 185,756 | 191,553 | 193,520 | 194,196 | 202,469 | 206,301 | 2%               |
| Fixed Wireless                  |         |         |         |         |         | 1,072   | 14,085  | 1214%            |
| Total                           | 175,446 | 185,756 | 191,553 | 193,520 | 194,196 | 203,541 | 220,386 | 8%               |

Source: TRA analysis

## Growth in the number of fixed telephony lines



Source: TRA analysis



# Fixed line outgoing minutes

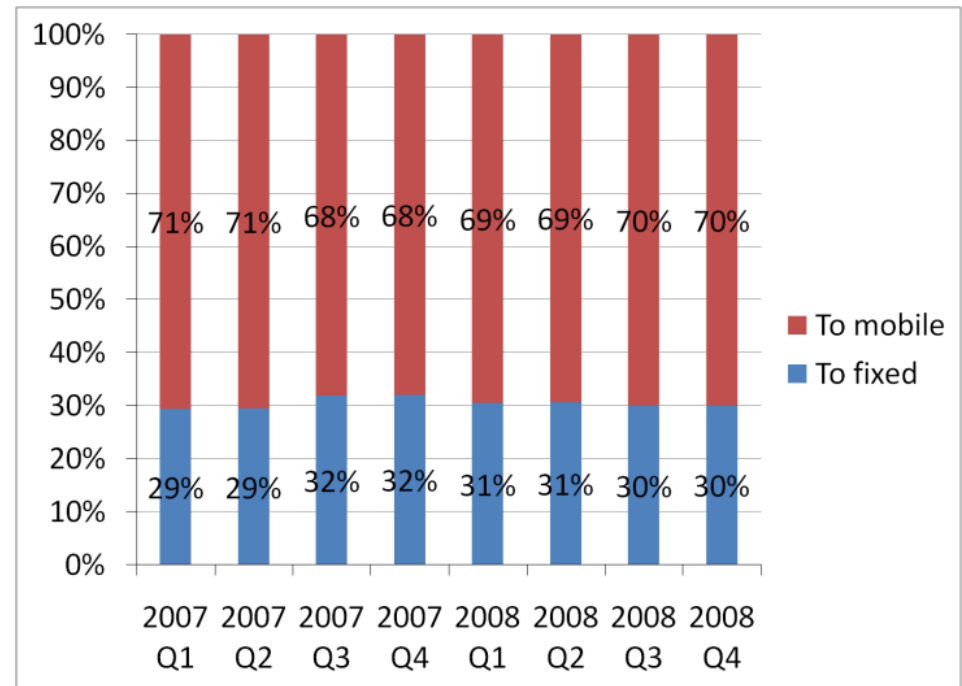
## Fixed lines outgoing minutes (volume)

| Fixed telephony traffic (in millions) |      | Q1 2007 | Q2 2007 | Q3 2007      | Q4 2007      | Q1 2008      | Q2 2008      | Q3 2008      | Q4 2008      |
|---------------------------------------|------|---------|---------|--------------|--------------|--------------|--------------|--------------|--------------|
| National outgoing minutes to fixed    |      | 70.0    | 73.0    | 77.3         | 78.4         | 78.1         | 83.6         | 72.5         | 75.3         |
| National outgoing minutes to mobile   |      | 167.6   | 174.4   | 165.4        | 166.0        | 178.0        | 189.2        | 169.4        | 175.3        |
| International outgoing minutes        | IDD  | n/a     | n/a     | 12.25        | 11.74        | 12.48        | 12.64        | 10.305       | 8.85         |
|                                       | CPS  | n/a     | n/a     | 1.3          | 1.3          | 1.4          | 1.5          | 1.4          | 1.4          |
|                                       | PPCC | n/a     | n/a     | 11.9         | 12.5         | 11.9         | 10.2         | 12.9         | 15.2         |
| <b>Total</b>                          |      |         |         | <b>268.2</b> | <b>270.0</b> | <b>281.9</b> | <b>297.1</b> | <b>266.5</b> | <b>276.1</b> |

Source: TRA analysis

- Fixed telephony traffic increased by 2.2% between Q4 2007 and Q4 2008 (see table above).
- About 70% of national traffic originated from fixed lines are fixed-to-mobile calls.

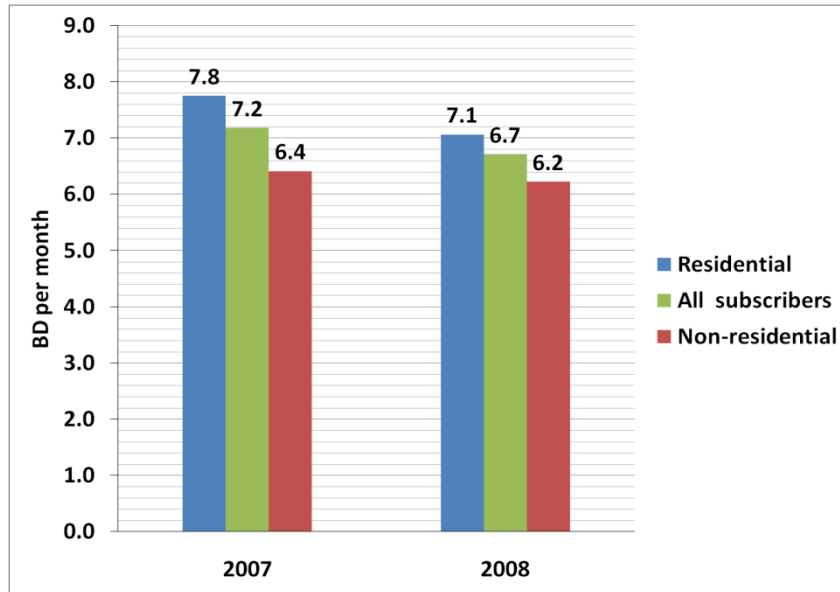
## Proportion of fixed national calls (Minutes)



Source: TRA analysis

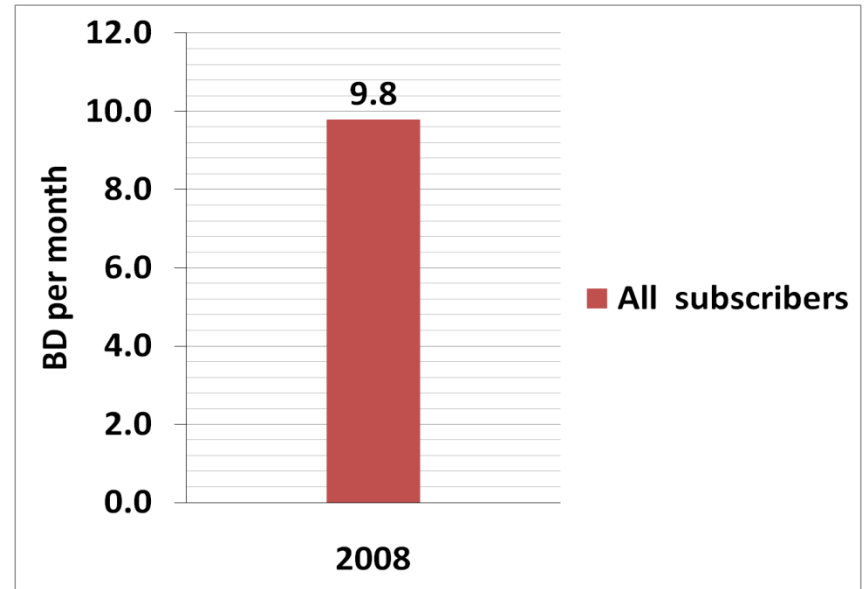
# Average revenue per fixed line user (ARPU)

Average revenue per user (excluding international calls revenues)



Source: TRA analysis

Average revenue per user (including international calls revenues)



Source: TRA analysis

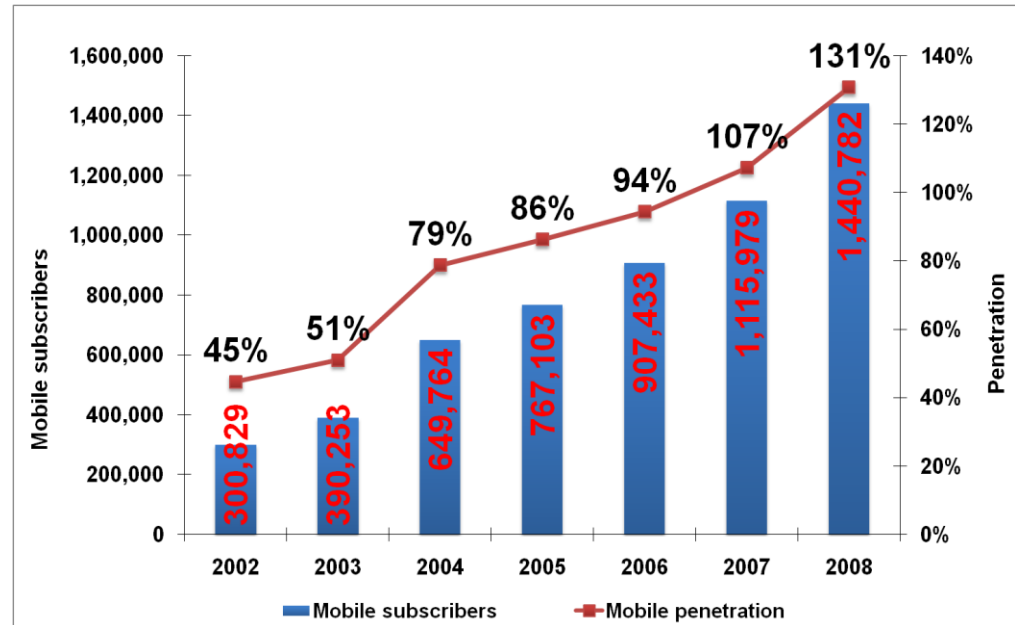


Note:  
Fixed lines revenues includes usage, monthly rental and line connections revenues

# Mobile services

- At the end of 2008 there were over 1.4 million mobile subscribers in the Kingdom of Bahrain.
- In December 2008 mobile penetration in Bahrain was 131%.

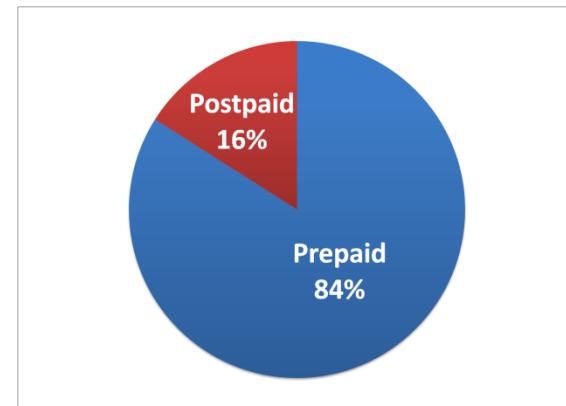
### Growth in the number of mobile subscribers



Source: TRA analysis

- The mobile market in Bahrain is predominantly prepaid. Prepaid subscribers represented 84% of mobile subscribers at the end of 2008.

### Proportion of prepaid and postpaid subscribers



Source: TRA analysis



Note:  
Mobile figures based on an estimate due to Batelco technical limitations on actual measurement.

# Mobile traffic

## Mobile outgoing minutes (volume)

| Mobile traffic (in millions)       |                           | Q1 2007 | Q2 2007 | Q3 2007      | Q4 2007      | Q1 2008      | Q2 2008      | Q3 2008    | Q4 2008      |
|------------------------------------|---------------------------|---------|---------|--------------|--------------|--------------|--------------|------------|--------------|
| Mobile outgoing minutes (Domestic) | From Prepaid              | 212.1   | 224.3   | 213.0        | 252.2        | 249.2        | 270.0        | 266.9      | 295.2        |
|                                    | From Postpaid             | 142.6   | 156.4   | 177.9        | 194.3        | 178.9        | 191.9        | 178.9      | 203.2        |
| International outgoing minutes     | International Direct Dial | N/A     | N/A     | 48.1         | 75.1         | 98.8         | 133.3        | 130.1      | 119.4        |
|                                    | PPCC                      |         | N/A     | 81.8         | 87.9         | 75.6         | 77.9         | 108.1      | 110.0        |
| <b>Total</b>                       |                           |         |         | <b>520.8</b> | <b>609.5</b> | <b>602.5</b> | <b>673.1</b> | <b>684</b> | <b>727.8</b> |

Source: TRA analysis

- Most of the mobile traffic originates from prepaid subscribers.
- Total mobile outgoing minutes grew by 19% between Q4 2007 and Q4 2008.

➤ Outbound roaming traffic increased by 84% between Q4 2007 and Q4 2008.

➤ Inbound roaming traffic increased by 24% between Q4 2007 and Q4 2008.

## Roaming traffic

| Roaming traffic (in millions) | Q3 2007     | Q4 2007     | Q2 2008     | Q3 2008     | Q4 2008     | Growth Q4 2008 - Q4 2007 |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|--------------------------|
| Outbound <sup>1</sup>         | 11.6        | 9.2         | 10.6        | 14.0        | 16.9        | 84%                      |
| Inbound <sup>2</sup>          | 15.6        | 17.2        | 19.1        | 19.9        | 21.4        | 24%                      |
| <b>Total</b>                  | <b>27.2</b> | <b>26.4</b> | <b>29.7</b> | <b>33.9</b> | <b>38.3</b> | <b>45%</b>               |

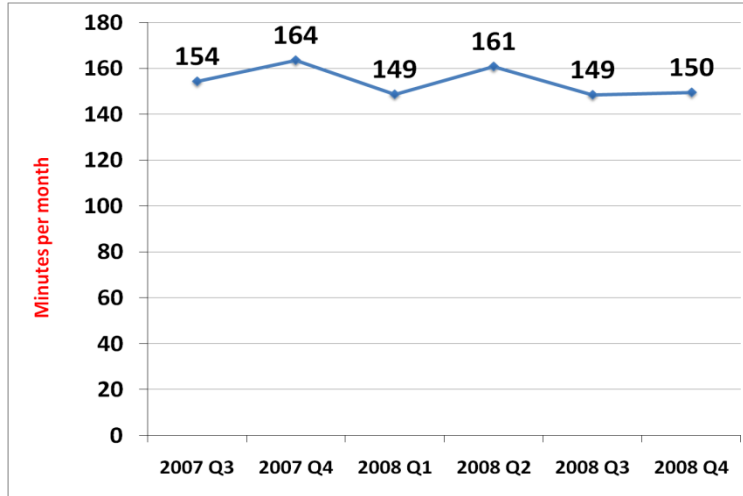
Source: TRA analysis

<sup>1</sup> Outbound traffic: Total number of roaming minutes made by own mobile subscribers to make and receive calls when outside the country (outside home network), e.g., when traveling abroad

<sup>2</sup> Inbound traffic: Total number of minutes made by visiting (foreign) subscribers when making and receiving calls within a country.

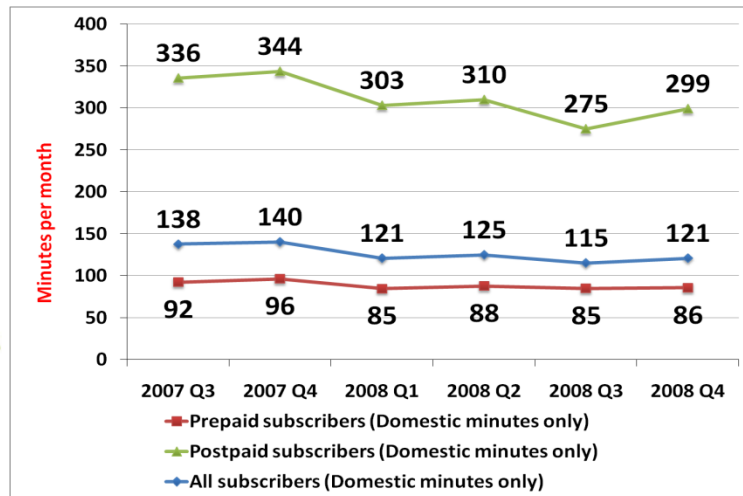
# Mobile traffic (Minutes and SMS)

Average monthly outgoing minutes per subscriber (Domestic and International traffic)



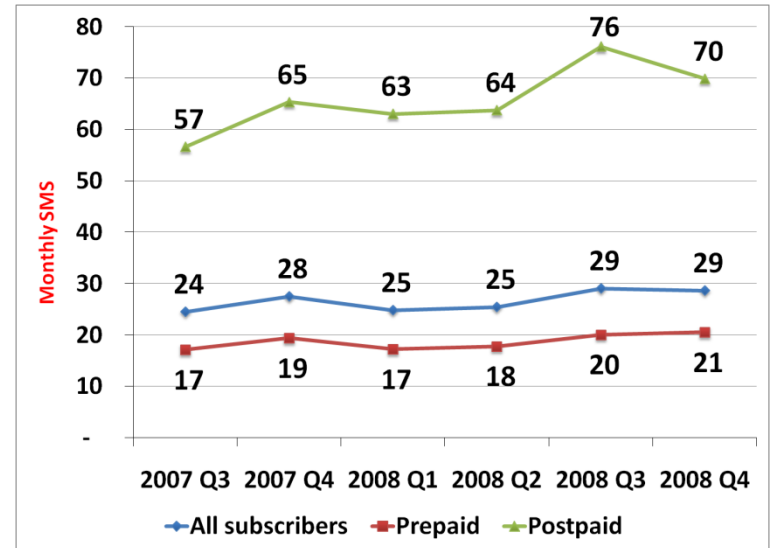
Source: TRA analysis

Average monthly outgoing minutes per subscriber (Domestic traffic only)



Source: TRA analysis

Average monthly outgoing SMS

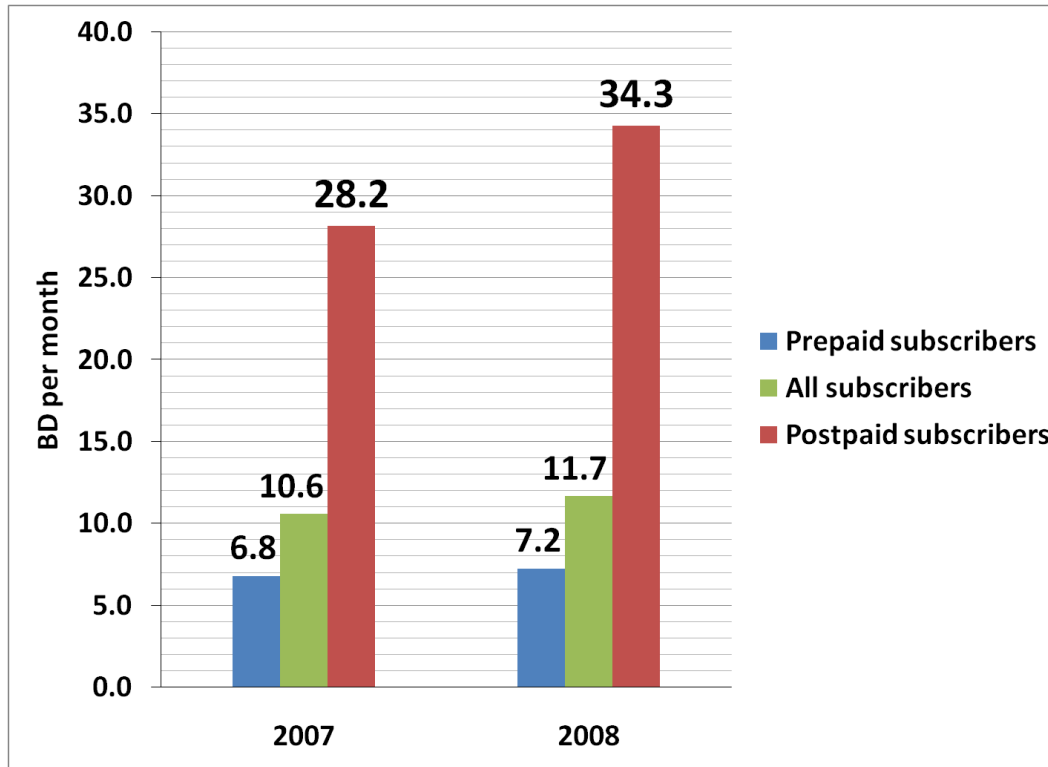


Source: TRA analysis



# Average revenue per mobile user (ARPU)

Average revenue per user (ARPU)



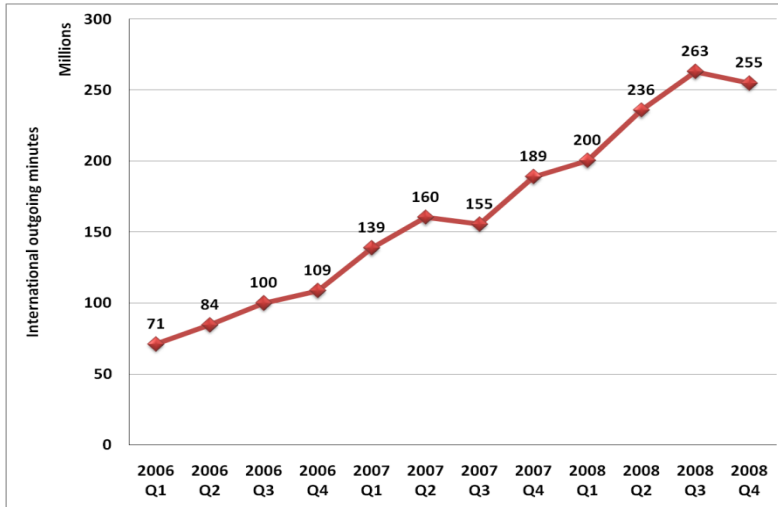
Source: TRA analysis



Note: Revenues including connection charges, usage charges (including international direct dial usage) and inbound revenue.

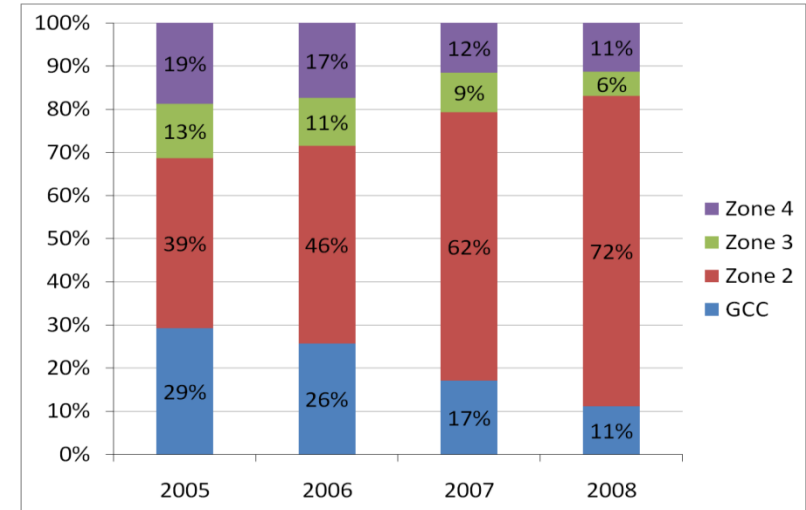
# International Outgoing minutes

International traffic is still growing rapidly. Between Q4 2007 and Q4 2008, international traffic grew by 35%.



Source: TRA analysis

About 72% of international calls (traffics) are made to South Asian countries



Source: TRA analysis

➤ Traffic to South Asian (Zone 2) countries is the fastest growing (+72%), followed by traffic to Zone 3 countries (+46%)

## International outgoing minutes

| International outgoing minutes(in millions) | 2005       | 2006       | 2007       | 2008       | Year -on-year Growth 2008 - 2007 |
|---------------------------------------------|------------|------------|------------|------------|----------------------------------|
| GCC <sup>1</sup>                            | 70.0       | 93.1       | 109.0      | 106.0      | -3%                              |
| Zone 2                                      | 95.0       | 167.0      | 400.0      | 686.5      | 72%                              |
| Zone 3                                      | 30.0       | 40.3       | 59.0       | 53.0       | -10%                             |
| Zone 4                                      | 45.3       | 63.0       | 74.1       | 108.3      | 46%                              |
| <b>Total</b>                                | <b>240</b> | <b>363</b> | <b>642</b> | <b>954</b> | <b>49%</b>                       |

Source: TRA analysis



<sup>1</sup> GCC countries: Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates.

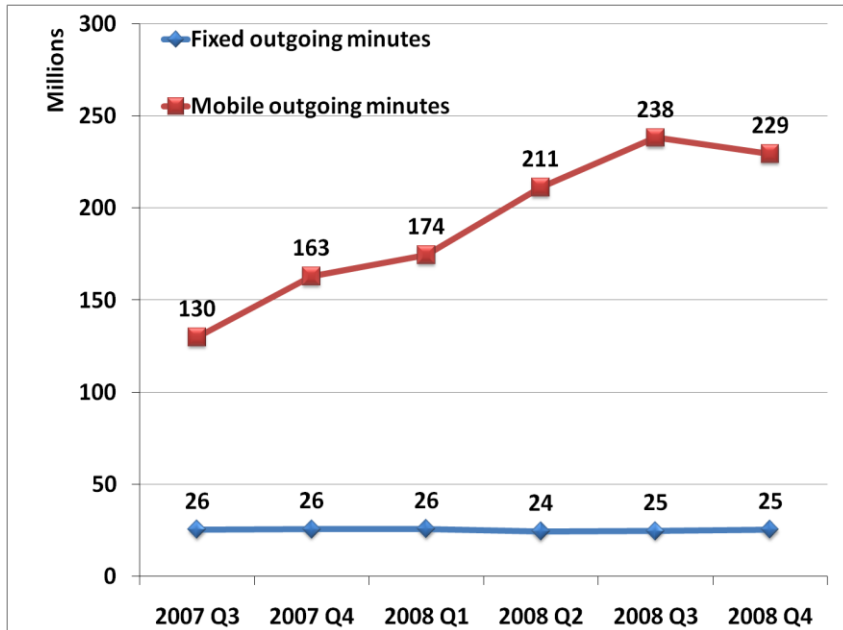
Zone 2: Calls to South Asian countries (Bangladesh, India, Pakistan, the Philippines and Sri Lanka).

Zone 3: Calls to other major destinations (Australia, Canada, France, Germany, Greece, Italy, Iran, New Zealand, Thailand, UK, USA and Yemen).

Zone 4: Calls to all other international destinations

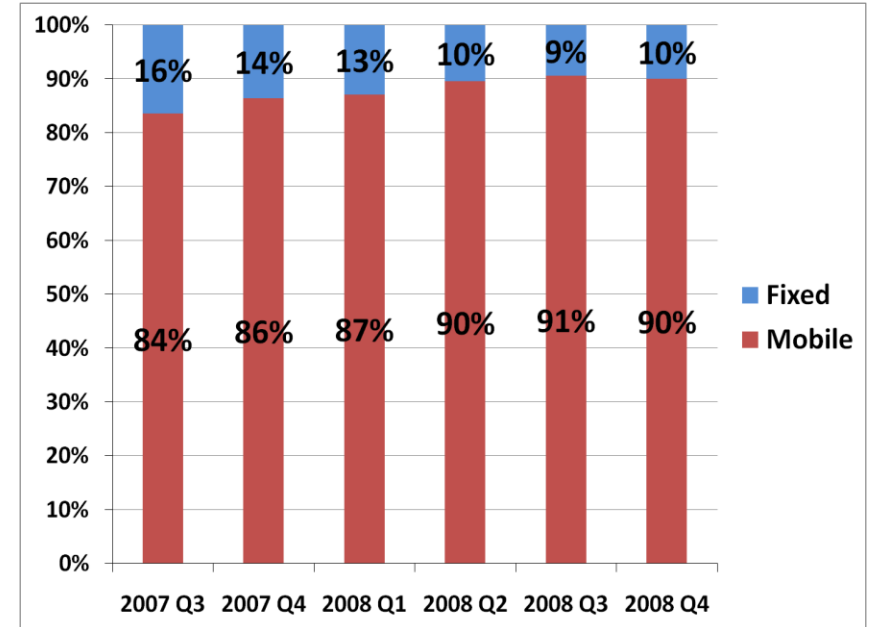
# International Outgoing minutes

International outgoing minutes originated on mobile<sup>1</sup> grew by 41% between Q4 2007 and Q4 2008.



Source: TRA analysis

International outgoing minutes originated on mobile represents 90% of the total international outgoing minutes in Q4 2008.



Source: TRA analysis



<sup>1</sup> Traffic originated from mobile including IDD and PPCC traffic. Traffic originated from fixed including IDD, CPS and PPCC traffic.

# International Calls revenues

➤ Revenues originated from calls to Zone 2 and Zone 4 are growing faster.

➤ Revenues originated from calls to zone 2 represent 48% of the total revenues in 2008

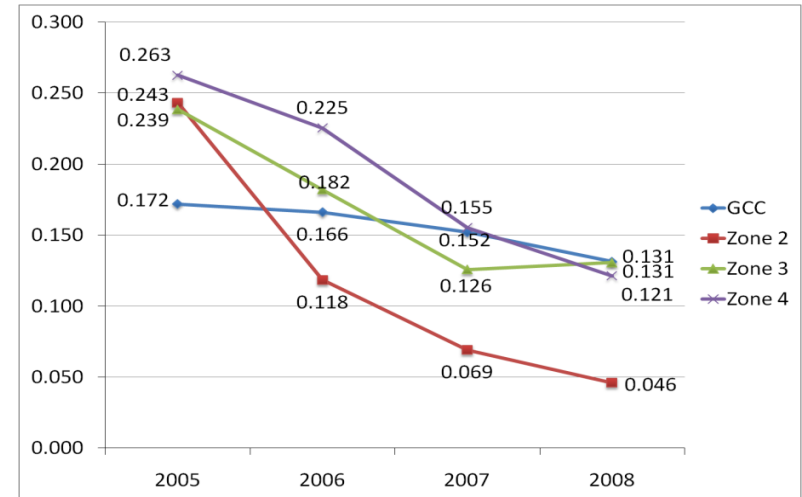
➤ The average revenue per minute for zone 2 is the smallest. It has declined from about 240 fils in 2005 to about 46 fils in 2008

## International calls revenues

| International usage revenues (BD in millions) | 2005        | 2006        | 2007        | 2008        | Year-on-year Growth 2008 - 2007 |
|-----------------------------------------------|-------------|-------------|-------------|-------------|---------------------------------|
| GCC                                           | 12.1        | 15.4        | 16.6        | 13.9        | -16%                            |
| Zone 2                                        | 23.2        | 19.7        | 27.6        | 31.6        | 14%                             |
| Zone 3                                        | 7.2         | 7.3         | 7.4         | 6.9         | -6%                             |
| Zone 4                                        | 11.9        | 14.3        | 11.5        | 13.1        | 14%                             |
| <b>Total</b>                                  | <b>54.4</b> | <b>56.7</b> | <b>63.2</b> | <b>65.6</b> | <b>4%</b>                       |

Source: TRA analysis

## Average revenue per minute by zone

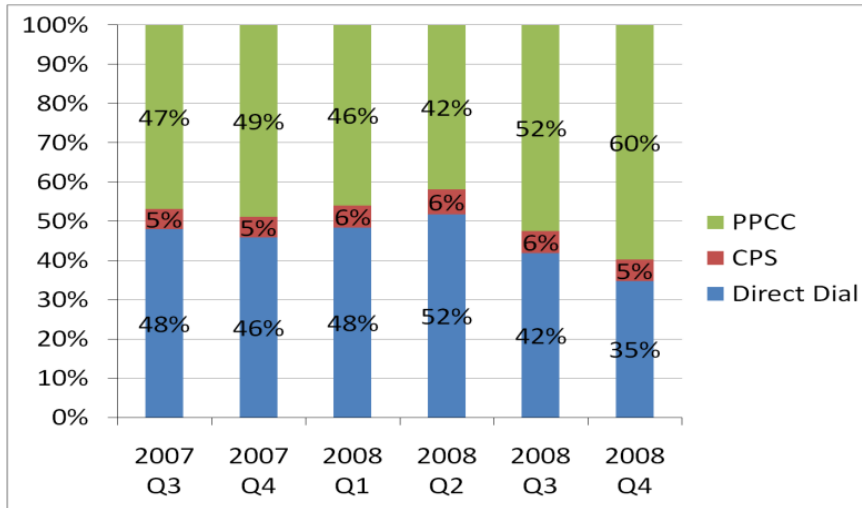


Source: TRA analysis



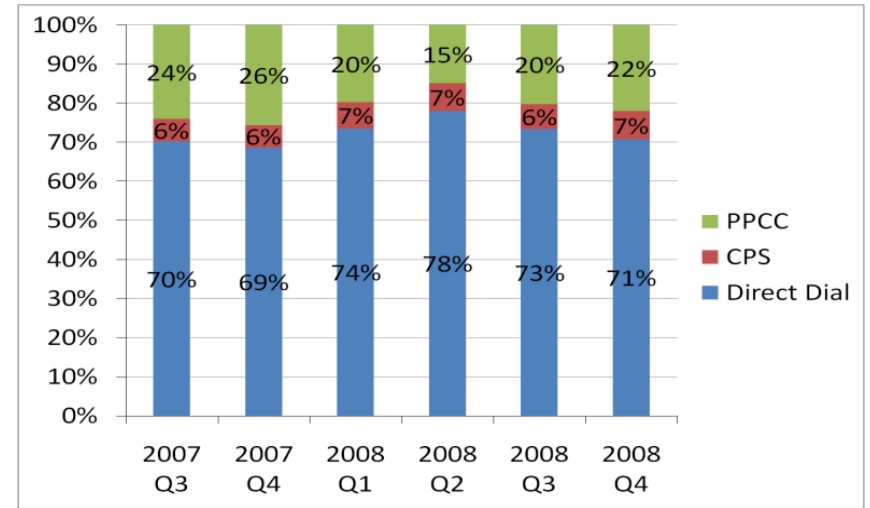
# Distribution of international minutes/revenues by access type - Fixed telephony

Distribution of international **minutes** originated from fixed by access type



Source: TRA analysis

Distribution of international **revenues** originated from fixed by access type

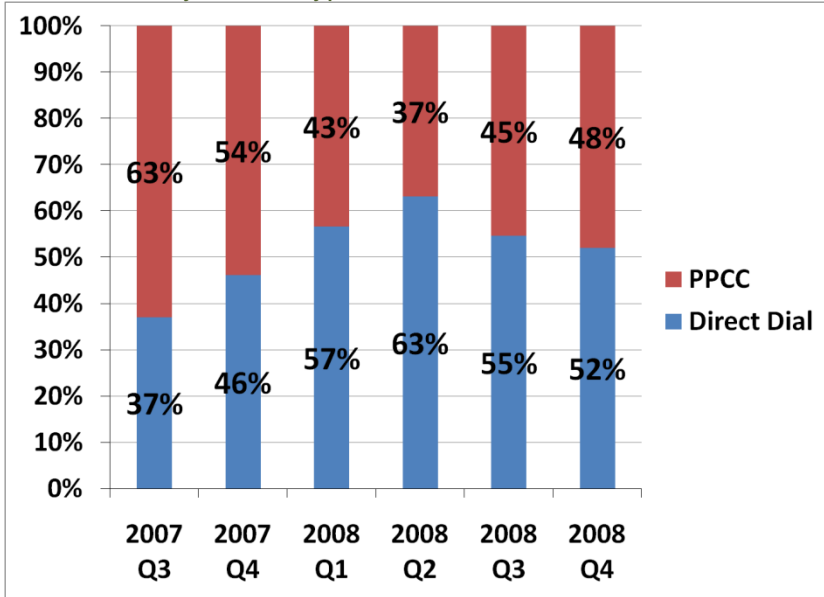


Source: TRA analysis



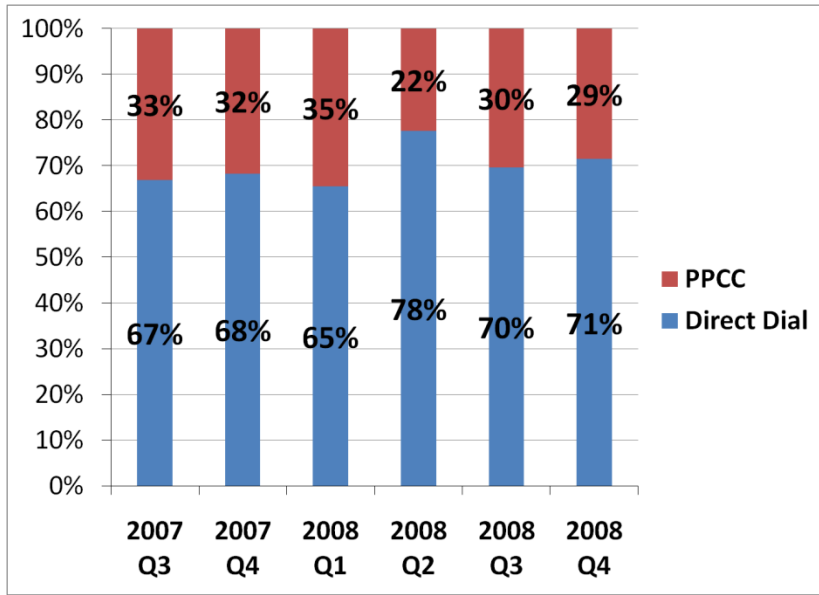
# Distribution of international minutes/revenues by access type - Mobile

Distribution of international **minutes** originated from mobile by access type



Source: TRA analysis

Distribution of international **revenues** originated from mobile by access type



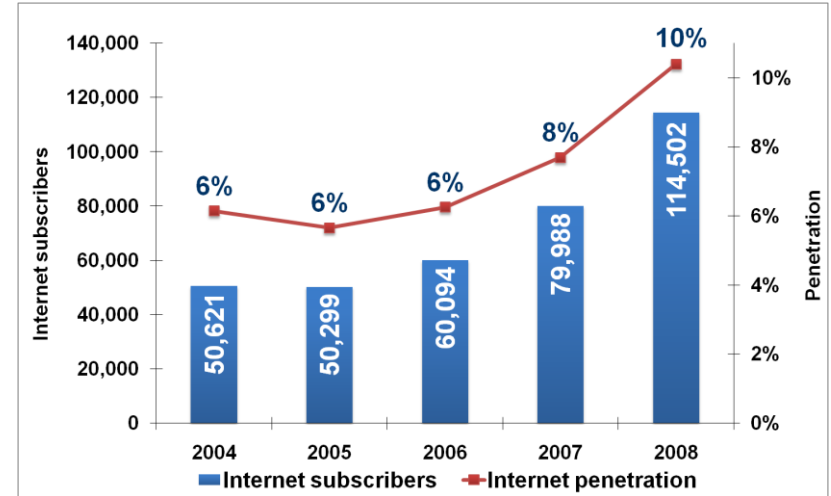
Source: TRA analysis



# Internet subscribers

- At the end of 2008 there were about 114,000 internet subscribers, of which 96% were broadband subscribers and 4% were dial-up subscribers.
- The number of broadband subscribers increased by 50% between 2007 and 2008.
- About 51% of households have fixed Broadband.

## Internet subscribers



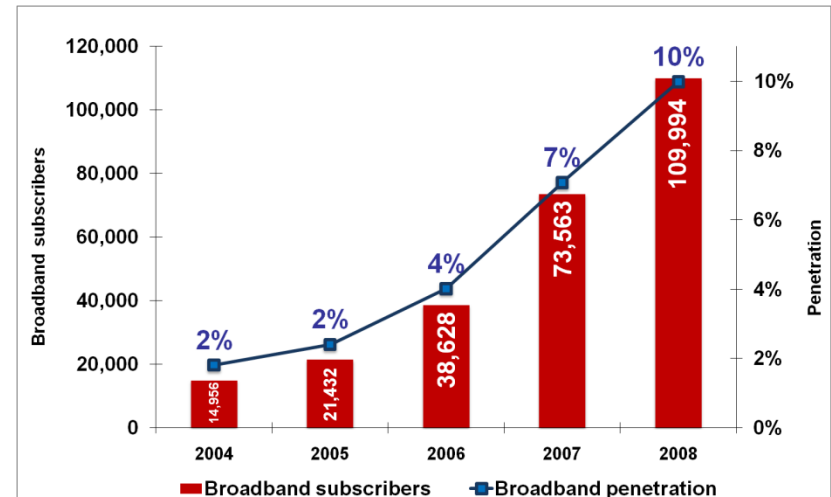
Source: TRA analysis

## Internet subscribers

|                  | 2004          | 2005          | 2006          | 2007          | 2008           | Year -on-year Growth 2008 - 2007 |
|------------------|---------------|---------------|---------------|---------------|----------------|----------------------------------|
| <b>Broadband</b> | 14,956        | 21,432        | 38,628        | 73,563        | 109,994        | 50%                              |
| <b>Dial up</b>   | 35,665        | 28,867        | 21,466        | 6,425         | 4,508          | -30%                             |
| <b>Total</b>     | <b>50,621</b> | <b>50,299</b> | <b>60,094</b> | <b>79,988</b> | <b>114,502</b> | <b>43%</b>                       |

Source: TRA analysis

## Broadband subscribers

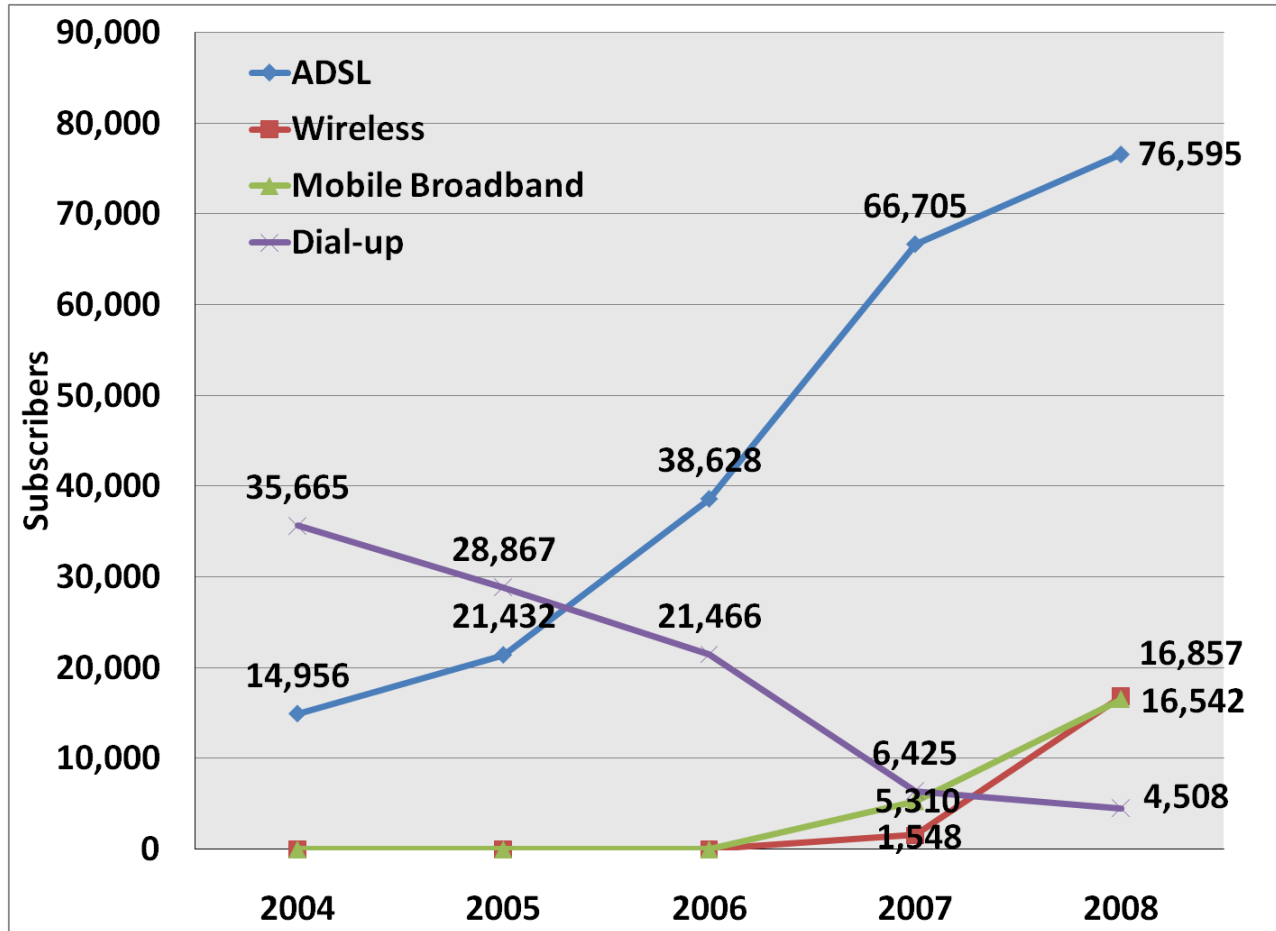


Source: TRA analysis

Note: Number of broadband subscribers include mobile broadband subscribers

# Internet subscribers

Internet subscribers by access type

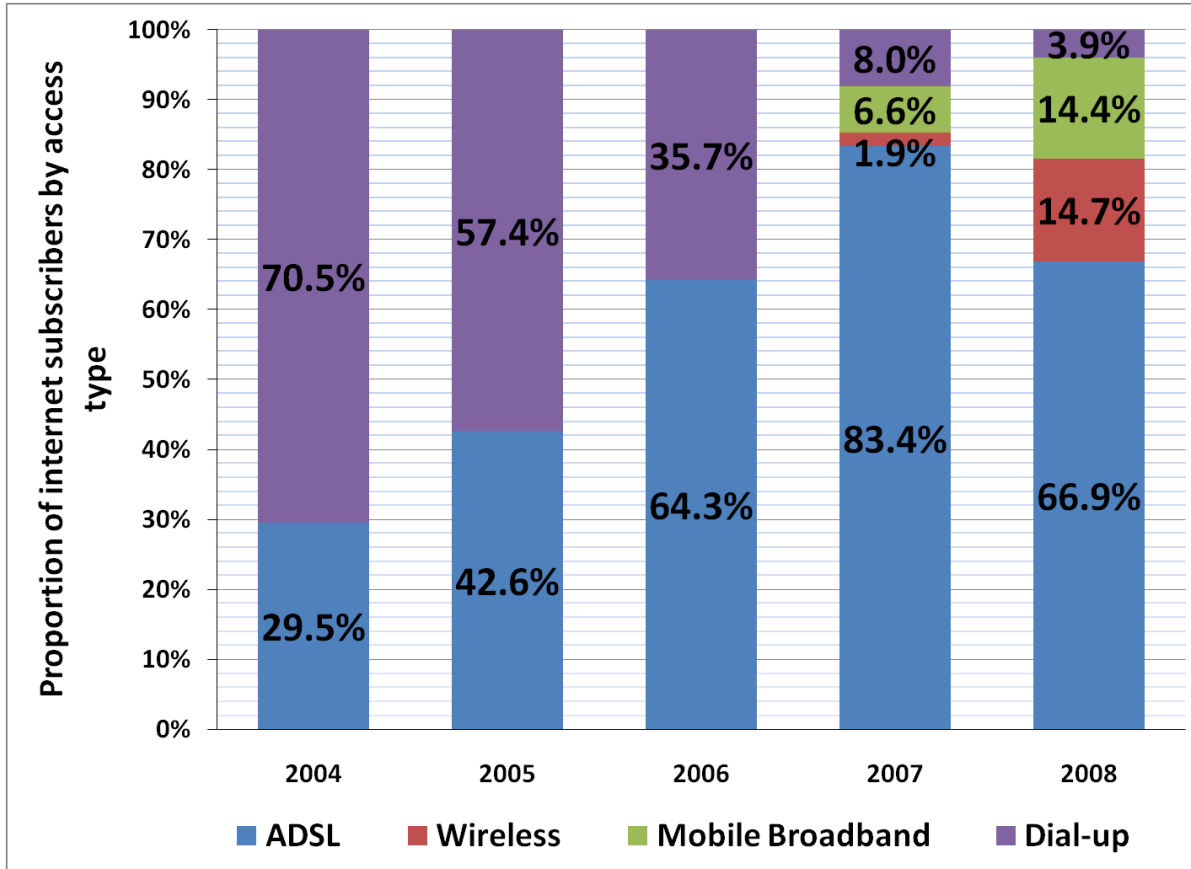


Source: TRA analysis

At the end of 2008 there were 76,595 ADSL, 16,857 wireless broadband, 16,542 mobile broadband and 4,508 dial-up subscribers.

# Internet subscribers

Proportion of internet subscribers by access type



Source: TRA analysis



# Broadband subscribers

➤ At the end of 2008 residential broadband customers represent 92% of Broadband customers.

➤ 256 Kbps customers represent the majority of Broadband customers.

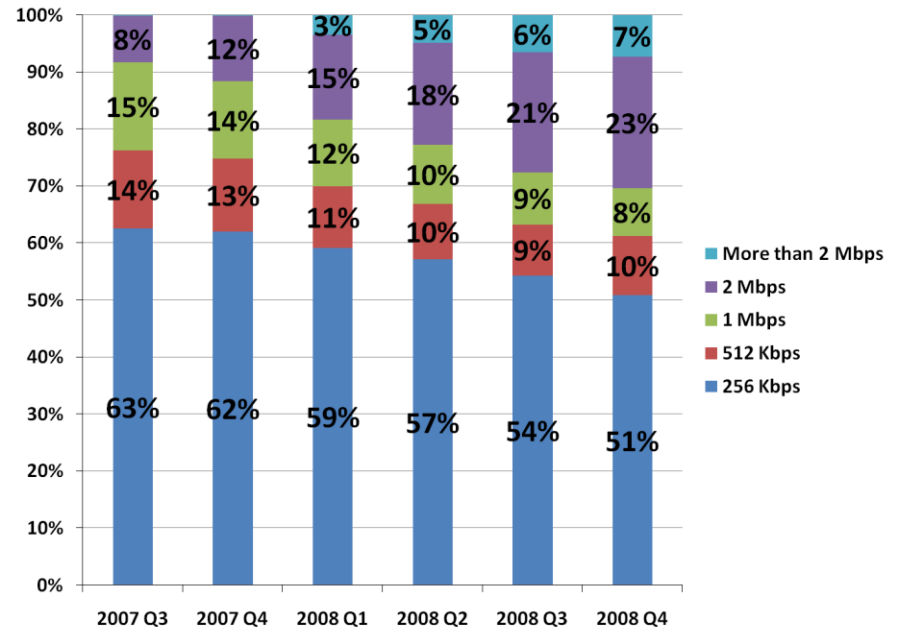
➤ The proportion of broadband subscribers with speed in excess of 512kb has grown from 26% to 38% between 2007 and 2008.

## Broadband subscribers

| Broadband subscribers    | 2004   | 2005   | 2006   | 2007   | 2008    | Yearly Growth 2008 - 2007 |
|--------------------------|--------|--------|--------|--------|---------|---------------------------|
| Residential <sup>1</sup> | 13,242 | 18,764 | 34,858 | 68,009 | 101,961 | 50%                       |
| Non Residential          | 1,714  | 2,668  | 3,770  | 5,554  | 8,033   | 45%                       |
| Total                    | 14,956 | 21,432 | 38,628 | 73,563 | 109,994 | 50%                       |

Source: TRA analysis

## Proportion of broadband subscribers by access speed

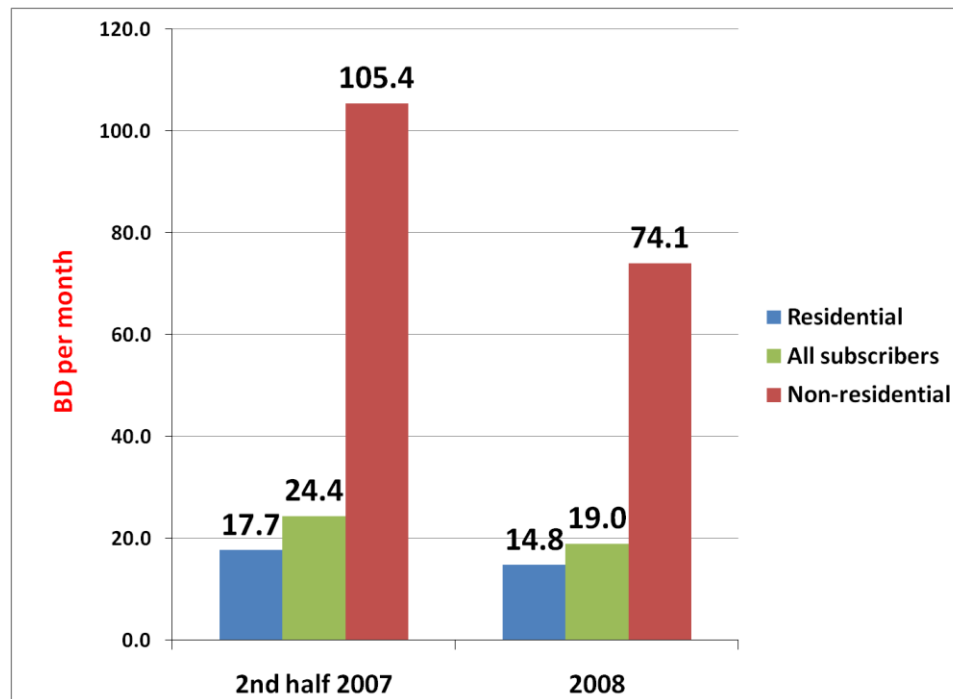


Source: TRA analysis

<sup>1</sup>Mobile broadband are included in the number of residential subscribers

# Average revenue per broadband user (ARPU)

Average revenue per broadband user (ARPU)



Source: TRA analysis



# Leased lines and data services

## Number of domestic leased lines

| Leased line speed         | 2007        | 2008        |
|---------------------------|-------------|-------------|
| x < 64 kbps and less      | 227         | 365         |
| 64 kbps ≤ x < 512 kbps    | 508         | 1163        |
| 512 kbps ≤ x < 1024 kbps  | 140         | 181         |
| 1024 kbps ≤ x < 2048 kbps | 104         | 149         |
| 2 Mbps ≤ x < 45 Mbps      | 124         | 496         |
| 45 Mbps ≤ x < 155 Mbps    | 2           | 27          |
| x ≥ 622 Mbps              | 0           | 3           |
| <b>Total</b>              | <b>1105</b> | <b>2384</b> |

Source: TRA analysis

## Number of circuits for other data services

| Data services                             | 2007        | 2008        |
|-------------------------------------------|-------------|-------------|
| National Frame Relay Service              | 1038        | 962         |
| National MPLS/IPVPN Service               | 264         | 384         |
| International Managed Leased Line service | 18          | 7           |
| International Frame Relay Service         | 29          | 9           |
| International ATM service                 | NA          | 0           |
| International MPLS/IPVPN Service          | 17          | 31          |
| Leased line over Ethernet                 | NA          | 0           |
| ADSL over Ethernet                        | NA          | 0           |
| <b>Total</b>                              | <b>1366</b> | <b>1393</b> |

Source: TRA analysis

## International leased lines

| Destinations       | Speed                                 | 2007       | 2008       |
|--------------------|---------------------------------------|------------|------------|
| Zone 1             | Analogue and Speeds lower than 64Kbps | 0          | 29         |
|                    | x < 1 Mbps                            | 133        | 146        |
|                    | 1Mbps ≤ x < 2 Mbps                    | 6          | 4          |
|                    | 2 Mbps ≤ x < 45 Mbps                  | 44         | 56         |
|                    | 45 Mbps ≤ x < 155 Mbps                | 7          | 10         |
|                    | 155 Mbps ≤ x < 622 Mbps               | 0          | 0          |
|                    | x ≥ 622 Mbps                          | 3          | 1          |
|                    | <b>Total</b>                          | <b>193</b> | <b>246</b> |
| Zone 2             | Analogue and Speeds lower than 64Kbps | 0          | 7          |
|                    | x < 1 Mbps                            | 15         | 14         |
|                    | 1Mbps ≤ x < 2 Mbps                    | 1          | 2          |
|                    | 2 Mbps ≤ x < 45 Mbps                  | 0          | 2          |
|                    | 45 Mbps ≤ x < 155 Mbps                | 1          | 0          |
| <b>Total</b>       | <b>17</b>                             | <b>25</b>  |            |
| Zone 3             | Analogue and Speeds lower than 64Kbps | 0          | 1          |
|                    | x < 1 Mbps                            | 20         | 18         |
|                    | 1Mbps ≤ x < 2 Mbps                    | 1          | 0          |
|                    | 2 Mbps ≤ x < 45 Mbps                  | 12         | 9          |
|                    | 45 Mbps ≤ x < 155 Mbps                | 3          | 2          |
|                    | 155 Mbps ≤ x < 622 Mbps               | 0          | 0          |
|                    | x ≥ 622 Mbps                          | 2          | 3          |
|                    | <b>Total</b>                          | <b>38</b>  | <b>33</b>  |
| <b>Grand total</b> | <b>248</b>                            | <b>304</b> |            |

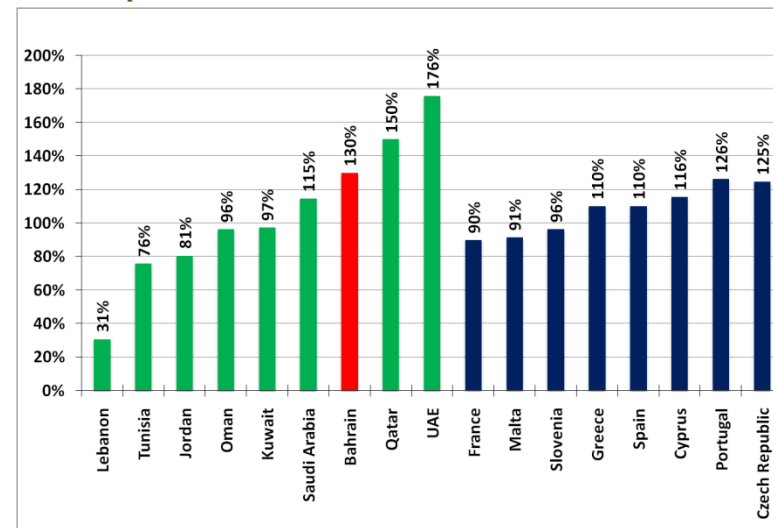
Source: TRA analysis

Zone 1: GCC countries;  
 Zone 2: rest of the Middle East, Turkey, Cyprus, Greece, India, Pakistan, South Africa; and  
 Zone 3: Continental USA, Canada, Europe, South East Asia

# International Benchmarking - 1

➤ In December 2008 mobile penetration in Bahrain was 131%. Bahrain has one of the highest mobile penetration rates in the GCC and Arab countries and compares well with the European countries considered.

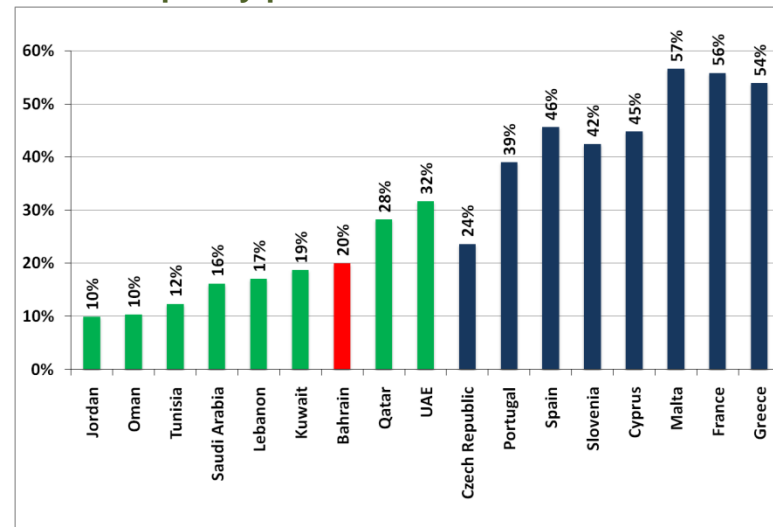
## Mobile penetration



Source: ITU data 2007 and TRA analysis

➤ At the end of 2008 the fixed line penetration in Bahrain was 20%. Compared to the GCC and other Arab countries, Bahrain has a high fixed line penetration. Compared to European countries, penetration in Bahrain and in Arab countries is lower.

## Fixed telephony penetration



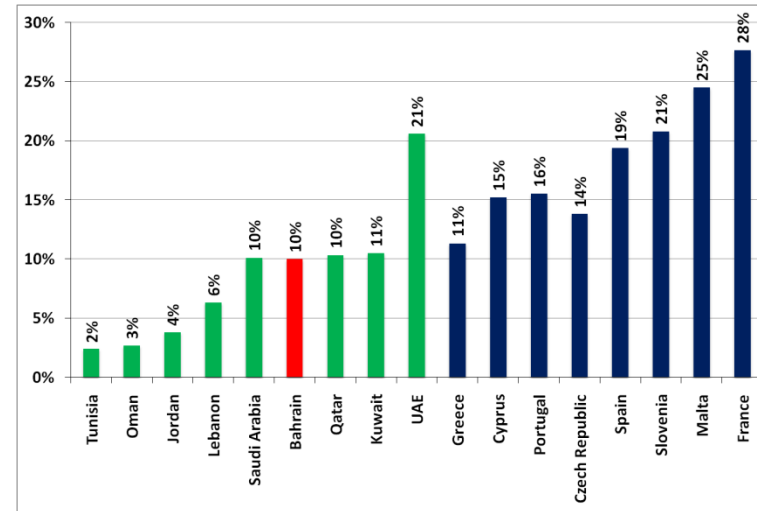
Source: ITU data 2007 and TRA analysis



# International Benchmarking - 2

➤ Bahrain's internet penetration is 10% in 2008. In spite of the growth in the number of internet subscribers, Bahrain's internet penetration is low compared to European countries.

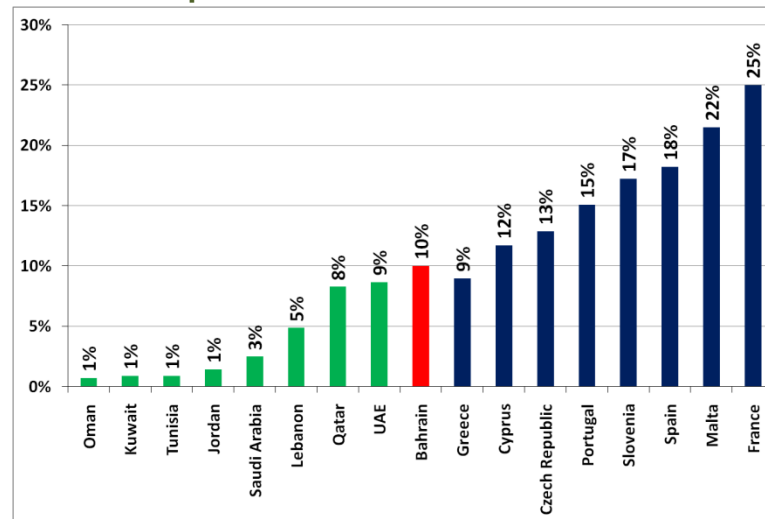
## Internet penetration



Source: ITU data 2007 and TRA analysis

➤ Bahrain's rank in broadband penetration, which stands at 10%, is better than Bahrain's rank in internet penetration, as 96% of internet subscribers are broadband subscribers

## Broadband penetration



Source: ITU data 2007 and TRA analysis



# List of Acronyms

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|      |                                         |
|------|-----------------------------------------|
| ADSL | Asymmetric Digital Subscriber Line      |
| ATM  | Asynchronous Transfer Mode              |
| BD   | Bahraini Dinar                          |
| CPS  | Carrier Pre-Selection                   |
| GCC  | Gulf Cooperation Council                |
| IDD  | International Direct Dial               |
| ITU  | International Telecommunication Union   |
| LAN  | Local Area Network                      |
| Mb   | Megabit                                 |
| Mbps | Megabit per second                      |
| MPLS | Multiprotocol Label Switching           |
| OLO  | Other licensed operators                |
| PPCC | Pre-Paid Calling Card                   |
| PSTN | Public Switched Telephone Network       |
| SMS  | Short Message Service                   |
| TRA  | Telecommunications Regulatory Authority |
| VOIP | Voice over Internet Protocol            |



# Definitions of some key indicators

|                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Main (fixed) telephone lines in operation (ITU code 112)                                                                   | A main line is a (fixed) telephone line connecting the subscriber's terminal equipment to the public switched network and which has a dedicated port in the telephone exchange equipment. This term is synonymous with the term main station or Direct Exchange Line (DEL) that are commonly used in telecommunication documents. It may not be the same as an access line or a subscriber. The number of ISDN channels should be included. Fixed wireless subscribers should also be included.                                                                     |
| Prepaid mobile subscribers (based on ITU code 271p)                                                                        | Total number of mobile cellular subscribers using prepaid cards. These are subscribers that rather than paying a fixed monthly subscription fee, choose to purchase blocks of usage time. Only active prepaid subscribers that have used the system (made or received a call/SMS) within the last 3 months should be included.                                                                                                                                                                                                                                      |
| Number of dial-up Internet subscribers (based on ITU code 4213d)                                                           | Number of Dial-up Internet subscribers. Dial-up is a connection to the Internet via a modem and telephone line, which requires that the modem dial a phone number when Internet access is needed. Only active subscribers that have used the system within the last 3 months should be included.                                                                                                                                                                                                                                                                    |
| Number of fixed broadband Internet subscribers (ITU code 4213tfb)                                                          | Total broadband Internet subscribers refers to those subscribers who pay for high-speed access to the public Internet (a TCP/IP connection), at speeds equal to, or greater than, 256 kbit/s, in one or both directions. This total is measured irrespective of the method of payment. It excludes subscribers with access to data communications (including the Internet) via mobile cellular networks.                                                                                                                                                            |
| Other fixed broadband Internet subscribers (ITU code 4213ob)                                                               | Internet subscribers using other fixed broadband technologies to access the Internet (other than DSL, cable modem and leased lines). This includes technologies such as satellite broadband Internet, Fibre-to-the-home Internet access, Ethernet LANs, fixed wireless access, Wireless Local Area Network, WiMax etc. Speeds should be equal to, or greater than, 256 kbit/s, in one or both directions. It would exclude users of temporary broadband access (e.g., roaming between PWLAN hotspots), and those with Internet access via mobile cellular networks. |
| Mobile broadband (Number of cellular mobile subscribers with access to data communications at broadband speeds, ITU 271mb) | Number of subscribers to cellular mobile networks with access to data communications (e.g. the Internet) at broadband speeds (here defined as greater than or equal to 256 kbit/s in one or both directions)* such as WCDMA, HSDPA, CDMA2000 1xEV-DO, CDMA 200 1xEV-DV etc.                                                                                                                                                                                                                                                                                         |



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