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The advent of VoIP: A regional overview and case studies.

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Prepared for the ITU
Algeria
March 2007

Outline

- **An overview of VoIP and its models for ILD**
- **Regulatory framework on VoIP in Arab Countries**
- **Primary research findings on VoIP in Egypt, Morocco and Saudi Arabia**
- **Case studies from Bahrain, Jordan and Saudi Arabia**



The prelude to the VoIP era: The Accounting Rate regime

- **Accounting Rate:** A price used between long distance companies to “balance up” what they owe each other. The accounting Rate is evenly applied, regardless of which carrier originates and which carrier terminates the call. (Newton's Telecom Dictionary - 2001)
- **Settlement Rate:** Half of the accounting rate regime agreed between the operators.



Asymmetry of competition status radically alters operators' bargaining power

1- New ILD entrants, offer lower termination rates to Monopoly operator in **Country A**. Outgoing call rates to **Country A** are also lowered because of competitive pressures.



2- **Country A** Monopoly operator gladly accepts the lower termination charges, yet does not change termination rate from competitive **Country B** on its own network.



4- Lower rates and same termination rates mean a lower margin for operators in **Country B**. Lower rates also usually change the balance of traffic flow between the two markets.



3- Monopoly operator has a higher margin on calls to competitive **Country B**, because of lower costs.



Monopoly markets invite VoIP arbitration

1- Monopoly ILD market translates into high rates for outgoing and incoming calls.



2- VoIP operators (origination and termination) build a business case based on difference with monopoly rates. (Price arbitrage)



4- Incumbent operator feels the pressure and responds by cracking down, and/or lowering rates to reduce feasibility for VoIP operators.



3- Presence of independent ISPs helps in setting up VoIP termination. Presence of Multiple cellular operators is also an enabling factor.



VoIP defined

- **Voice over IP.** The technology used to transmit voice conversations over a data network using the Internet Protocol. Such data network may be the Internet or a corporate Intranet, or managed networks typically used by long and local service traditional providers and ISPs that use VoIP. (Newton's Telecom Dictionary - 2001)
- VoIP benefits include cost savings of handling only one network rather than a voice and data network. In addition, features for end users can be changed easily as IP phones allow for user profiles and software upgrades to be centrally managed using standard computing systems.



VoIP Applications: VoIP comes in all shapes and forms.

- **PC to PC VoIP:** Client Software are used. Examples include Skype, MSN and Yahoo. Applications are bandwidth hungry and good quality require broadband connections. Free service is the norm. Both caller and receiver know that the call is VoIP.
 - **Pros:** Free and features-rich.
 - **Cons:** Does not offer carrier grade quality, quality depends on connection and state of Internet traffic.
- **PC to Phone VoIP:** Callers use same client software as PC to PC but with prepaid cards or paid accounts. Voice calls are terminated on PSTN and Mobile Networks at generally low rates. Example: Skype. Caller knows service is VoIP, but receiver does not know that it is VoIP.
 - **Pros:** Cheap.
 - **Cons:** Does not offer carrier grade quality, quality depends on connection and state of Internet traffic. Receivers of calls may blame their network operators (not VoIP operator) for the occasional poor quality.



VoIP Applications: Phone to Phone VoIP

- **Phone to Phone VoIP:** Special VoIP terminals are used that interconnect with regular PSTN lines. When users dial numbers, the terminal dials for an Internet connection to start a VoIP call. Call charges vary depending on destination (as VoIP termination costs vary). Caller knows call is VoIP, but receiver does not know call is VoIP.
 - **Pros:** Cheap.
 - **Cons:** Does not offer carrier grade quality, quality depends on connection and state of Internet traffic. Receivers of calls may blame their network operators (not VoIP operator) for the occasional poor quality.
- **Prepaid cards Phone to Phone VoIP:** Mainly in countries where VoIP is legal. VoIP operators offer prepaid cards on toll free numbers with proper call origination agreements with PSTN and cellular networks.
 - **Pros:** Cheap.
 - **Cons:** Does not offer carrier grade quality, quality depends on connection and state of Internet traffic. Receivers of calls may blame their network operators (not VoIP operator) for the occasional poor quality.



VoIP Applications: Incumbents' use of VoIP

- Facing competitive pressures, incumbents are increasingly routing chunks of their traffic on VoIP. The adoption of soft-switches (NGNs) is enabling the trend. Cellular operators are also adopting this trend.
- Infrastructure-based operators *usually* employ better QoS methods for their VoIP traffic.
- Such operators also use VoIP overtly and covertly:
 - Overtly through clearly marked VoIP prepaid cards (usually with a different brand name)
 - Covertly by routing some traffic on VoIP when TDM networks are busy or over-utilized to save on interconnection fees with some destinations.



The advent of the Internet in Arab countries started in an ILD monopoly context (mid-late 1990s).

Two models with two outcomes

- Internet services provided by the monopoly incumbent (e.g. Qtel, Batelco, Etisalat, Omantel)



- Monopoly operators were generally able to ban VoIP origination and termination. Due to their control of all network elements. E.g Skype & Vonage are blocked!

- Internet services provided by ISPs. Telcos provided IP bandwidth (e.g. Egypt, Jordan, Saudi)



- Quite a few ISPs, with pressured margins, saw VoIP termination as a lifeline revenue stream. Incumbents complained about VoIP termination.

Source: Arab Advisors Group



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Key Takeaways

- In fully liberalized markets VoIP becomes a moot matter. Indeed, VoIP becomes an enabler of Internet and broadband adoption. In addition VoIP and ILD competition enable new services and investments such as Call Centers.
- In a Monopoly context (or controlled duopoly) VoIP is treated as a major threat to monopoly protected revenue streams.
- In monopoly markets, ILD rates are artificially inflated despite lower costs and technological advances.
- Protecting the high ILD revenue streams of operators will not necessarily mean the greater good for the economy. After all, lower rates mean more savings for consumers and businesses in other economic sectors.



Regulatory Overview of VoIP in the Arab World



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Algeria: Regulator has liberalized the market and allows VoIP.

- **L' Autorité de Régulation de la Poste et des Télécommunications (ARPT)**, which commenced its operations in August 2001, is in charge of regulating the Algerian post and telecommunications markets and services. The telecommunication law of August 2000 set the rules for enabling competition in the sector, and created a regulatory authority in charge of regulating the telecom sector.
- The Algerian International Long Distance ILD market was liberalized in 2004 and is currently competitive.
- Using VoIP to originate or terminate traffic is allowed via an authorization regime. The tariff for the international call termination in the network of the operators supplying VoIP services is set at minimum **0.07 Euro**.
- Currently there are 6 operators with authorizations to operate and provide VOIP services. The operators are: EEPAD, Smart Link Communications, Webphone Network, Icosnet, Vocalone, LastNet Algeria. Only EEPAD is **officially** operational (as of end of 2006).



Bahrain: An ILD hot bed of competition where VoIP is widely used.

- **The Telecommunications Regulatory Authority** is the regulatory body in Bahrain. The TRA is responsible for granting new licenses and managing existing ones. It is also charged with promoting and balancing the interests of subscribers and other users, and promoting effective and fair competition among new and existing licensed operators.
- Licensed operators can originate and terminate VoIP traffic. VoIP services may be delivered only by holders of either (or both of) a **national fixed services license**, or an **international services license**.
- Some 12 out of 34 licensees already provide VoIP services in Bahrain.
- VoIP operators receive their International Internet Bandwidth from the publicly-owned Internet exchange in the country.



Egypt: VoIP not officially allowed yet, despite market liberalization in 2006.

- **The Ministry of Communications and Information Technology**, and the **National Telecommunication Regulatory Authority (NTRA)** oversee the market. The Ministry of Communication and Information Technology is responsible for the overall development of telecommunications policy. The NTRA is responsible for providing a transparent regulatory framework along with ensuring fair competition among operators.
- On February 5, 2006, the communications ministry published the general liberalization rules for international voice and data services (including VoIP). The NTRA was supposed to publish the specifications book in February 2006, but this was delayed till now.
- VoIP distribution for the end user is illegal but legal for the corporate accounts to get it from the ISP's. **2007 maybe the year that officially allows VoIP.**
- Telecom Egypt uses VoIP for around 15% of its ILD traffic according to the NTRA. Substantial VoIP termination occurs in the country through Internet leased lines.



Iraq: VoIP remains officially illegal, but is widely available.

- **CMC** is a financially and administratively independent regulator for the telecom and media sector with an objective to encourage investment and discourage state interference. The commission has sole responsibility for licensing and regulating the telecom, broadcasting, information services and other media in Iraq.
- New fixed wireless licenses in Iraq make the market liberalized.
- Market sources indicate wide spread use of VoIP enabled by VSAT links and Internet cafes. The presence of a competitive and booming GSM market avails many options for VoIP termination as well.



Jordan: A liberalized market with substantial use of VoIP.

- Jordan's regulator, the **TRC**, is responsible for issuing all licenses for telecommunications services in Jordan, and regulating the sector.
- Jordan Telecom lost its ILD monopoly at yearend 2004. Following this, cellular operators with individual licenses and other operators setup their own ILD gateways and diverted all or part of their traffic onto the new gateways (e.g. Fastlink, Batelco Jordan, Umniah).
- All class licenses can originate and terminate VoIP and TDM international traffic with all networks provided they have sign an interconnection agreement.
- A plethora of VoIP prepaid cards exist in the market. Jordan Telecom responded with its own VoIP prepaid service.



Kuwait: Public Monopoly fixed market with monopoly approach to VoIP.

- The Ministry of Communications (MOC) solely operates Kuwait's fixed telecommunications network and is also the regulatory entity for telecommunications in the country. Development plans are issued by the MOC, while in some cases approval from the parliament is essential for matters pertaining to operating licenses, liberalization policies and privatization issues. The ILD market remains a monopoly for the MOC.
- Cellular market has two operators with a third license expected in 2007.
- Third party VoIP is illegal and banned. MOC actively tracks down VoIP usage to cut it.
- There are plans to regulate and legalize VoIP but without a clear timeline yet.



Lebanon: Market liberalization frozen by the political deadlock in the country.

- A newly staffed regulator, the Telecommunication Regulatory Authority (TRA) is now in Lebanon. The TRA's main mission is to regulate the telecommunications sector in Lebanon to achieve a competitive environment and to enhance the offered services in order to develop the sector and benefit the economy. Pending ratification by the President and budget, the Ministry of Telecommunications is the de-facto regulator.
- VoIP is illegal in Lebanon. OGERO, the fixed provider, does not rely on VoIP nor offer VoIP.
- Given the competitive ISP market, VoIP termination and origination is widely spread.
- Market expected to liberalize quickly should the political deadlock ease.



Morocco: A liberalized market with “rationed” VoIP.

- The Agence Nationale de Réglementation des Télécommunications (ANRT) is a public establishment with the status of a financially autonomous legal entity responsible for regulatory issues governing telecommunications activity in Morocco. The ANRT has been instrumental in making Morocco a regional pioneer in liberalization alongside Jordan and Bahrain.
- The ILD (TDM) market in Morocco is liberalized with Maroc Telecom, Maroc Connect, and Meditel having each its international gateway.
- Moreover, VoIP is allowed in Morocco for licensed operators, call centers and private networks. The major operators use VoIP in addition to TDM. End user VoIP –outside licensed operators- is not yet allowed.



Oman: Remains a classical monopoly market.

- The Telecommunications Regulatory Authority (TRA) regulates the establishment, operation and maintenance of telecommunication services. Its mandate also includes promoting the interest of telecommunication service providers and beneficiaries.
- VoIP is illegal in Oman where OmanTel still has a monopoly on fixed services and ILD. It operates the sole legal ILD gateway of the country.
- The incumbent has the right to use whatever technology it deems fit for its ILD services (including VoIP). It does not offer VoIP services in Oman.
- The market should have a second fixed license by 2007 with operations to start in 2008.



Palestine: De-facto competition despite the monopoly status!

- The Palestinian telecommunication market is in a state of flux. The Ministry used to be the regulatory body that regulates the market. Yet a decree establishing the Telecommunication Regulatory Authority (TRA) is waiting for an approval from the Palestinian Legislative Council before the TRA starts working officially.
- While Paltel has legal monopoly on all ILD traffic in Palestine, the operator faces de-facto competition from four cellular Israeli operators. Moreover, illegal VoIP termination is widespread through parties getting IP leased lines from ISPs (Israeli and Palestinian).
- The decision has been made to legalize VoIP operators as part of liberalizing the market (PA already issued a second GSM license in Palestine to Kuwait's Wataniya). The process is still in the applications receipt phase.



Qatar: The last bastion of monopoly markets in the region expects some competition in 2007/2008.

- Qatar is one of the few telecom markets in the Arab World that remained in a state of complete monopoly. This was set to change on November 6, 2006, as His Highness Emir Sheikh Hamad bin Khalifa Al Thani, decreed Law No 34 of 2006 that established a regulator, ictQATAR, to plan and oversee market liberalization. IctQATAR's plan is to award two telecom licenses by end of 2007, one for cellular and one for fixed.
- Qtel remains the monopoly operator with a strong grip on ILD traffic. It leverages VoIP for some of its international traffic.



Saudi Arabia: Market moved from monopoly into full liberalization in less than 3 years.

- The Ministry of Communications and Information Technology (The Ministry) and The Communications and Information Technology Commission (CITC) are responsible for the regulation and supervision of the Telecom sector in Saudi Arabia. The Saudi market has rapidly moved into full liberalization by 2007 transforming it from a full monopoly market in 2003 (apart from ISP resale).
- ILD voice market is competitive as the second GSM operator has its own international gateway. Moreover, the two datacomm licensees have their own international gateways for bandwidth.
- VoIP remains illegal in Saudi Arabia, despite widespread use (origination and termination). Yet with full liberalization in 2007, the CITC is widely expected to fully liberalize it for all class and individual licensees.



Sudan: A competitive market that still bans VoIP.

- The National Telecom Corporation (NTC) is the regulatory body in charge of telecommunication services in Sudan. The NTC was established under Telecom Act 2001, and aims at promoting and regulating the telecom sector to conform to developments and globalization.
- ILD service is competitive in Sudan. The three licensed cellular operators and the two fixed operators use their own international gateways. These licensed operators can use VoIP to carry part of their international traffic.
- VoIP termination and origination (outside the licensed cellular and fixed operators) is illegal. Sudatel actively tries to find and stop cases of illegal VoIP termination.



Syria: A market where ILD monopoly is strongly protected.

- The Syrian Telecommunications Establishment (STE) is a state-owned company. The STE is the monopoly operator for fixed services, including voice telephony, submarine lines and satellite communications. It also provides datacomm and Internet services. As part of the new outlook of STE, the company has a new name and brand, Syrian Telecom.
- As the STE has not finalized tariff rebalancing, it remains dependent on incoming ILD traffic for hard currency and revenues. The STE also does not give discounts to ILD traffic from the two BOT GSM operators.
- VoIP is illegal in Syria. STE closely guards against it. STE itself routes some of its ILD traffic using VoIP.



Tunisia: Limited ILD competition in large market.

- The Ministry of Communication Technologies along with the National Telecommunication Commission (Instance Nationale des Télécommunication INT) and the National Agency for Frequencies are responsible for regulating the telecom sector in Tunisia.
- The ministry has announced that there will not be a tender for a third mobile operator in 2007. Yet, the ministry is planning on awarding one new fixed license during 2007. VoIP is used by licensed operators and corporate private networks.
- There is some level of ILD competition in Tunisia: Tunisie Telecom has two International gateways. The platform is based on IP network, and excess voice traffic is routed over IP network (VoIP) instead of expanding the existing circuit switched network. Tunisiana (Orascom Telecom Tunisia) has one International gateway. Orascom Telecom owns and uses M-Link, an international carrier based in Belgium.



UAE: A duopoly market that bans VoIP.

- The Telecom Regulatory Authority (TRA) is an independent public authority established under Federal Decree by law No.3 of 2003. It started its operations in late 2005. The TRA is the body that oversees the telecom sector and operators in UAE. The TRA serves as the executive arm to the Supreme Committee for the supervision of the telecom sector.
- Other than for the two licensed operators, Etisalat and Du, VoIP is not allowed in the UAE. Both Etisalat and Du have substantial government ownership.
- Etisalat actively tracks down VoIP usage and takes measures to stop it. The broadband adoption in the UAE encourages consumers to try VoIP services. Hence Etisalat blocks the web sites of companies like Skype and Vonage and shuts down VoIP ports.



Yemen: Regulations do not allow VoIP.

- In terms of regulation, there is no separate government entity dedicated solely to overseeing the Yemen telecom market. Instead, Yemen's Ministry of Telecommunications and Information Technology (MTIT) handles all regulatory matters.
- VoIP is illegal in Yemen, while there are reports of it being offered by few companies. The Monopoly operator is the Public Telecom Company (PTC).
- Companies who wish to make use of VoIP on their private networks, can do so after getting approvals from the Ministry.



Primary research findings on consumer VoIP usage in Egypt, Morocco and Saudi Arabia



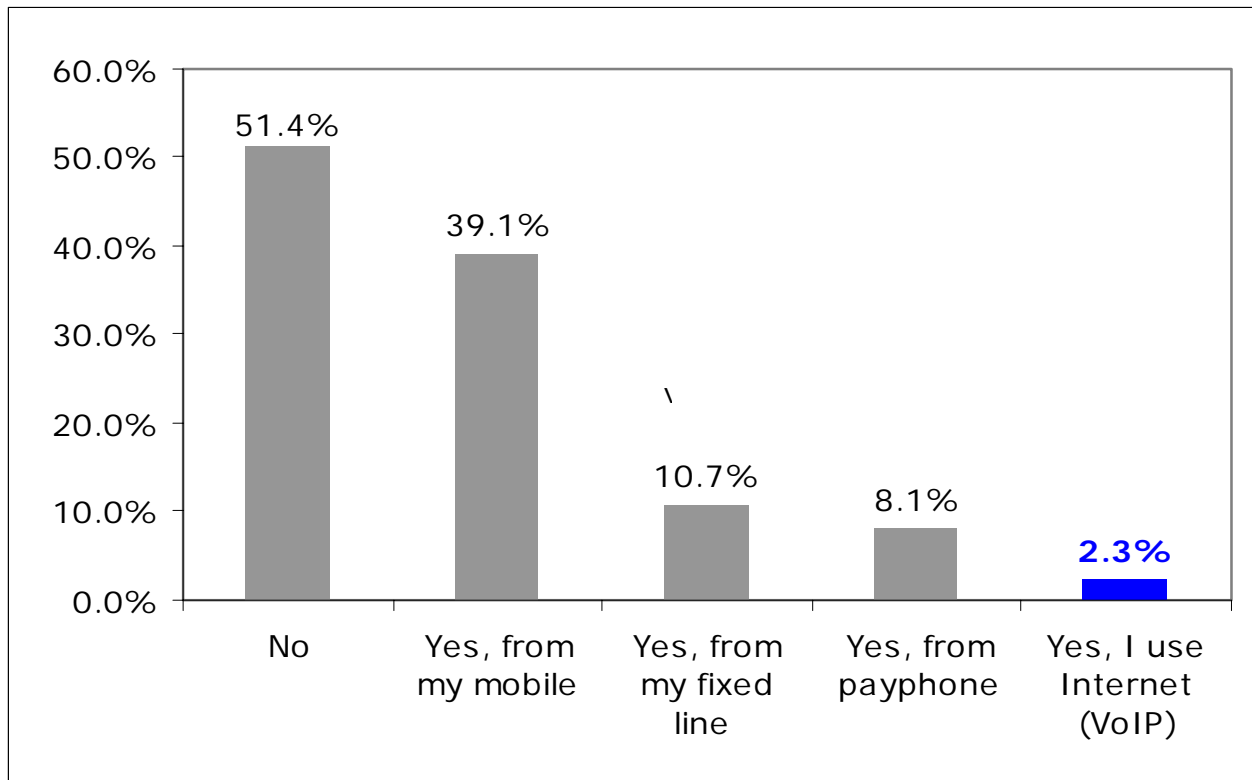
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Sources:
Arab Advisors Group surveys in 2005
and 2006

2.3% of Egypt's cellular users use VoIP to call internationally. 51.4% do not make international calls.

Egypt's GSM users International calls use patterns



Note: Percentages are calculated from the total sample size of 700 respondents.

Source: *Egypt GSM Users Survey 2006*, Arab Advisors Group (Sample size 700 respondents)



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International calls usage patterns are very similar between users of Egypt's two GSM networks.

Egypt's GSM users International calls use patterns by network

	Mobinil	Vodafone	Both
No	167	188	5
%	53.0%	51.9%	21.7%
Yes, from my fixed line	32	39	4
%	10.2%	10.8%	17.4%
Yes., from my mobile.	122	137	15
%	38.7%	37.8%	65.2%
Yes, from payphone	28	27	2
%	8.9%	7.5%	8.7%
Yes, I use Internet (VoIP)	4	10	2
%	1.3%	2.8%	8.7%
Total by Mobile Operator	315	362	23

Source: *Egypt GSM Users Survey 2006*, Arab Advisors Group (Sample size 700 respondents)



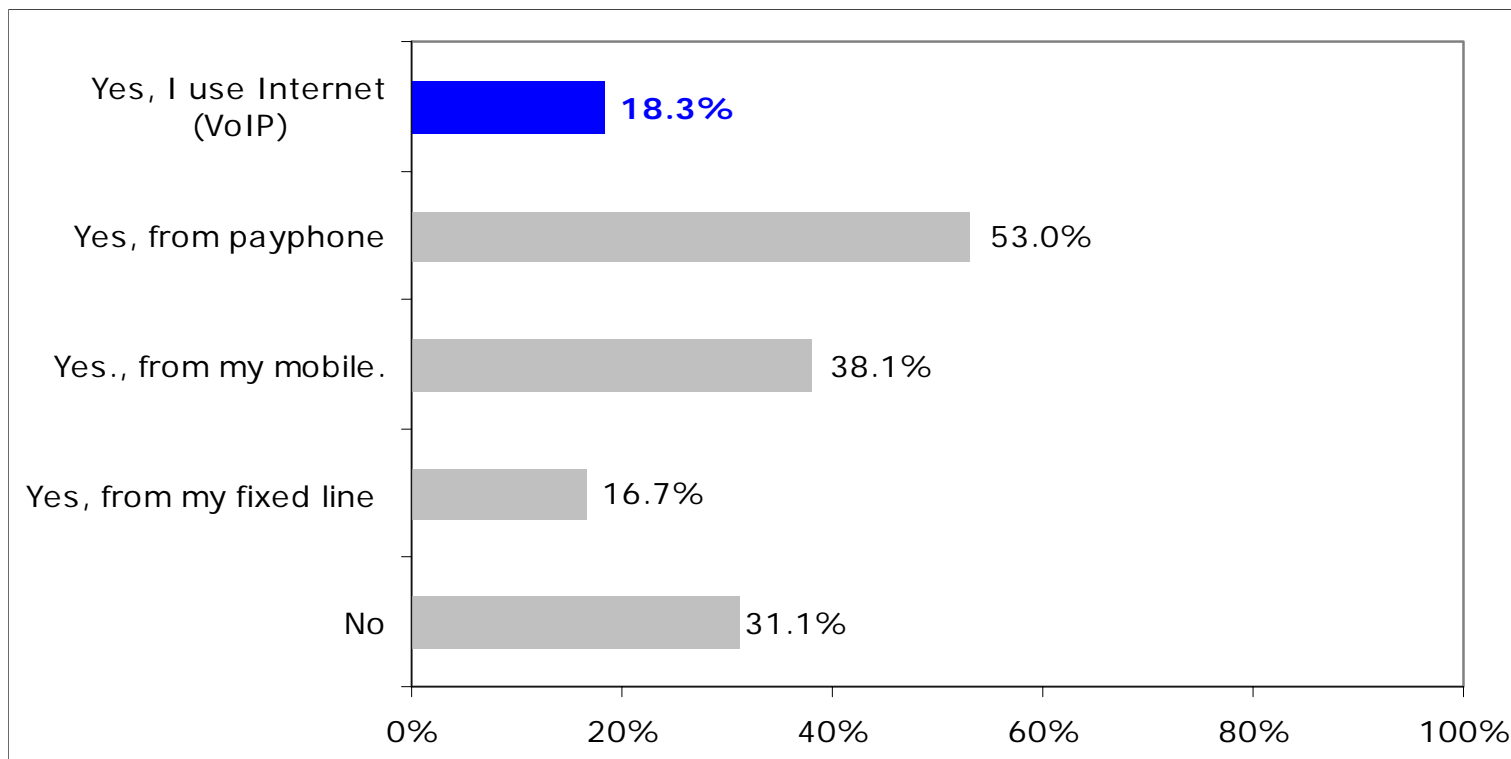
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18.3% of Morocco's cellular users use VoIP to call internationally. 31.1% do not make international calls.

Morocco's GSM users International calls use patterns



Note: Percentages are calculated from the total sample size of 700

Source: *Morocco GSM Users Survey 2006*, Arab Advisors Group (Sample size 700 respondents)



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Expectedly, use of Internet VoIP for international calls is higher among the younger generation.

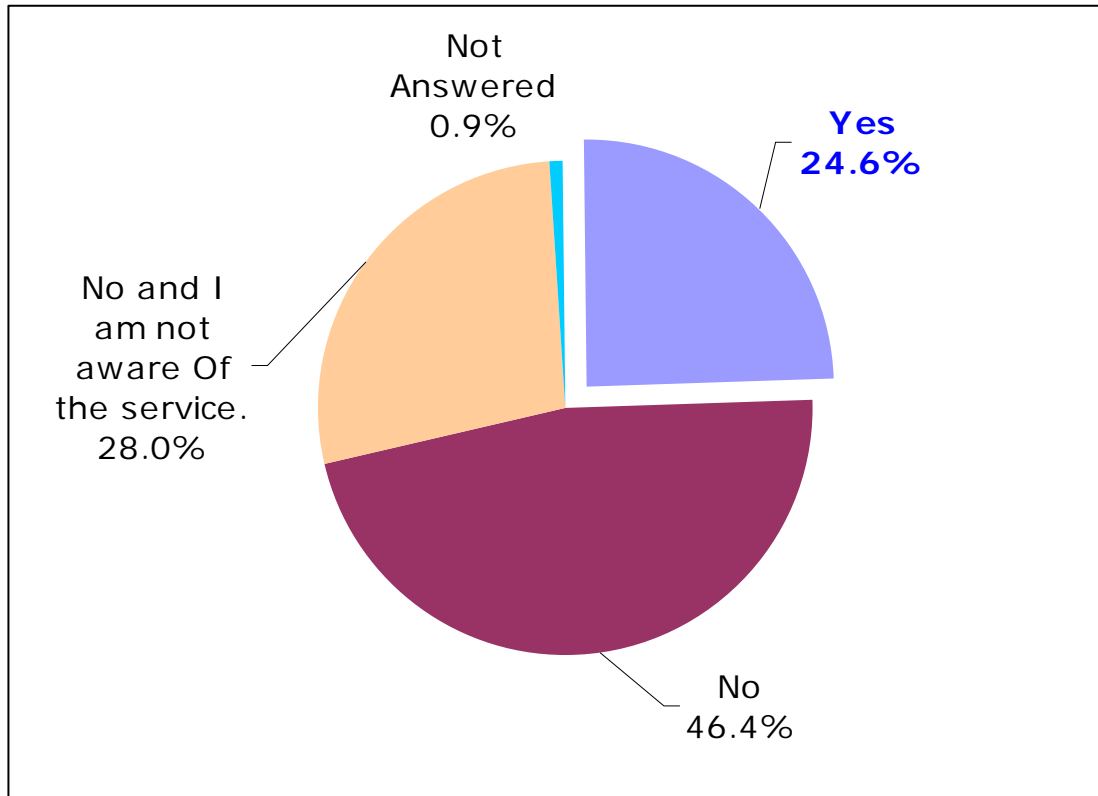
Morocco's GSM users International calls use patterns by age

	15 - 24	25 - 34	35 - 44	45 - 54	55 - 64	Above 64
No	85	76	27	24	6	0
%	29.9%	28.0%	33.3%	46.2%	54.5%	0.0%
Yes, from my fixed line	54	45	11	5	2	0
%	19.0%	16.6%	13.6%	9.6%	18.2%	0.0%
Yes, from my mobile.	107	113	27	16	3	1
%	37.7%	41.7%	33.3%	30.8%	27.3%	100.0%
Yes, from payphone	152	155	40	19	4	1
%	53.5%	57.2%	49.4%	36.5%	36.4%	100.0%
Yes, I use Internet (VoIP)	60	50	13	4	1	0
%	21.1%	18.5%	16.0%	7.7%	9.1%	0.0%
Total	284	271	81	52	11	1



Possibly due to wide Internet adoption and large numbers of expatriates, a full quarter of urban Saudi cellular users use VoIP.

Saudi Arabia's cellular users use of VoIP



Note: Percentages are calculated from the total sample size of 674

Source: *Saudi Cellular Users Survey 2006*, Arab Advisors Group (Sample size 674 respondents)



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VoIP use for International calls in Saudi Arabia increases among the younger generation.

Saudi Arabia's cellular users use of VoIP by age

	15 - 24	25 - 34	35 - 44	45 - 54	Above 54	Not Answered
Yes	56	78	20	11	0	1
%	30.4%	28.8%	14.3%	19.3%	0.0%	16.7%
No	71	124	79	28	8	3
%	38.6%	45.8%	56.4%	49.1%	50.0%	50.0%
No and I am not aware of the service	56	66	40	17	8	2
%	30.4%	24.4%	28.6%	29.8%	50.0%	33.3%
Not Answered	1	3	1	1	0	0
%	0.5%	1.1%	0.7%	1.8%	0.0%	0.0%
Total age group	184	271	140	57	16	6



A higher share of males reported using VoIP for International calls than females.

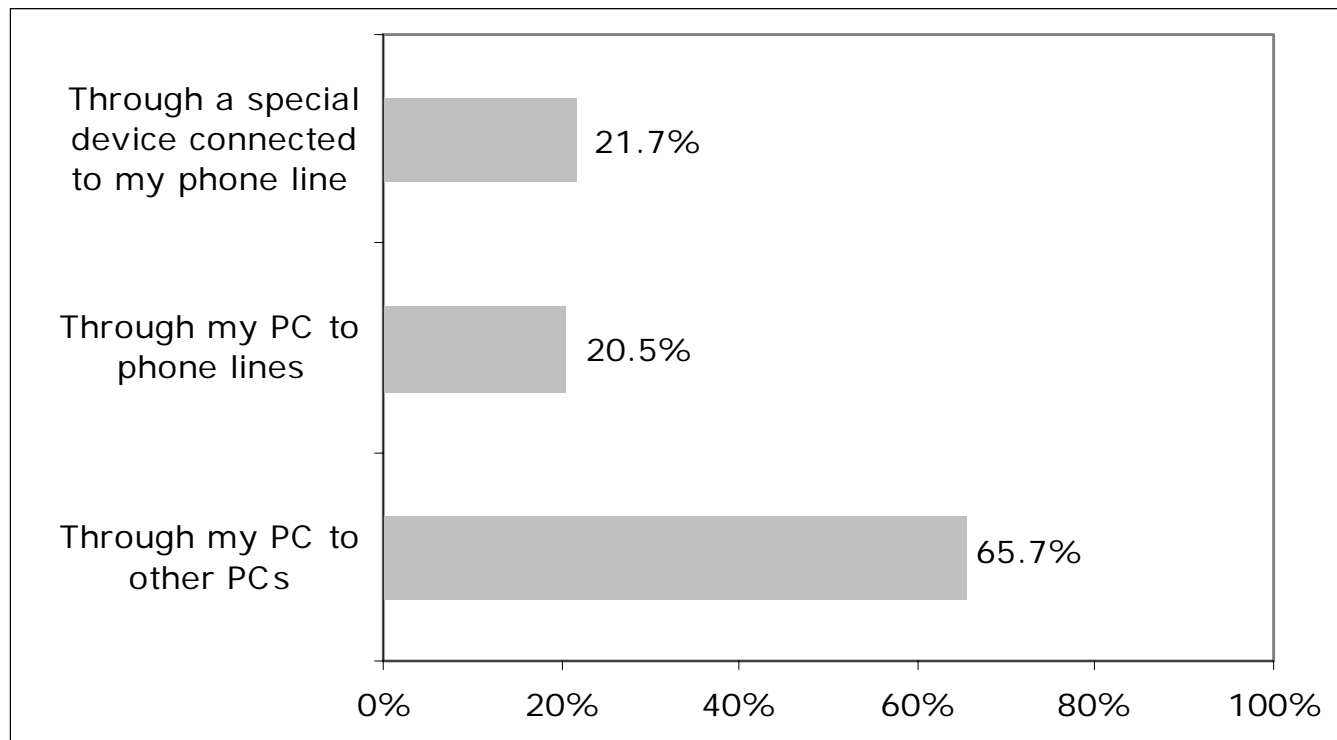
Saudi Arabia's cellular users use of VoIP by gender

	Male	Female
Yes	106	60
%	27.7%	20.6%
No	175	138
%	45.7%	47.4%
No and I am not aware of the service.	101	88
%	26.4%	30.2%
Not Answered	1	5
%	0.3%	1.7%
Total	383	291



VoIP through terminals connected to the PSTN is used by 21.7% of those that use VoIP. Majority uses PC to PC VoIP.

How VoIP is used by VoIP users in Saudi Arabia



Note: Percentages are calculated from the 166 respondents who use VoIP.

Source: *Saudi Cellular Users Survey 2006*, Arab Advisors Group (Sample size 674 respondents)



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Rule of thumb: No incumbent welcomes competition yet resistance comes in degrees!

<p>High</p> <p>Revenue Growth potential</p>	<p>Broadband Service (bit stream unbundling): Incumbents have an incentive to cooperate with ISPs that act as resellers.</p> <p>Fixed Transmission services to mobile operators.</p>	<p>Broadband Service (local loop unbundling): LLU threatens the monopoly pricing of broadband and hence will not be favored by incumbents.</p>
<p>LOW</p>	<p>MVNO by commercial agreement: Cellular incumbents could embrace this if it carries clear benefits.</p>	<p>International calls: Likely outcome is lower revenues and incumbent has no incentive to cooperate.</p> <p>MVNO by decree.</p>

LOW Incumbent resistance to High competition



Post competition, incumbents emphasize wholesale business to at least continue to have a share in the competitors' business.

- Jordan Telecom's strategy is to be the wholesale provider of traffic for other operators in Jordan. Thus, they have the wholesale department, which will be wholly separate from Jordan Telecom's retail business. 45 people will be in this department.
- Still, some operators in the market decry the whole sale catalogue and rates as favoring Jordan Telecom's subsidiaries.
- The cellular incumbent Fastlink, does not have a clear push in the wholesale arena, and is against allowing other operators use of its Fiber Optics infrastructure currently under construction, esp. its Fiber Optics link to Aqaba.



International calls are the easiest to liberalize, especially with VoIP. Incumbents understand this fact and go with the flow!

New entrants

In **Bahrain**, there are more than 12 prepaid VoIP cards operators. All use IP bandwidth through the public IP exchange.

In **Jordan** all licensees (class and individual) can offer VoIP.

VoIP operators increased traffic by 20-30% (people spend the same but talk more)

Incumbents' reaction

Batelco joined the fray with its own VoIP prepaid card and promoted it well to the objections of a few other operators.

Jordan Telecom also offers a prepaid VoIP card and heavily promotes it, leveraging its mobile and Internet subsidiaries. It also offers the live box broadband solution.



Even when VoIP is legal, some parties still choose to use an illegal option!

Illegal VoIP Termination

A few unknown companies still terminate VoIP traffic without an interconnection agreement with Jordan Telecom.

Same companies also terminate on cellular lines without an interconnection agreement.

Reasons

This is cheaper than a proper interconnection agreement by 10% (10 fils rather than 1.1 fils) and for late night calls by more than 91% (1 fils as opposed to 11 fils).

Quite a few on-net rate plans are also cheaper than the TRC-designated interconnection rates with the cellular operators.



The good news: VoIP radically expands the market rather than just re-dividing it.

Operator's feedback in Bahrain and Jordan

- Low priced VoIP prepaid cards cause a surge in traffic. In a sense, consumers continue to spend similar levels but talk more.
- For business customers, prepaid VoIP has switching costs. A majority, choose to continue with higher priced TDM service. Market is not as price sensitive as prepaid VoIP operators like to think! This is especially the case when TDM call rates are reasonably priced.



Bahrain Focus



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Bahrain's Regulatory Framework

Main Fixed and ILD operators

- Batelco
- Kalaam Telecom
- Elephant
- 2Connect
- Neutel
- Lightspeed
- Etisalcom
- Mena Telecom

Cellular Operators

- Batelco
- MTC Vodafone Bahrain

Currently there is a consultation regarding issuing a third cellular license. The TRA will announce the results in a period of a month or two.



Bahrain's VoIP Regulatory Framework

VoIP services may be delivered only by holders of either (or both of) a **national fixed services license**, or an **international services license**.

Operators can provide calling cards if they have a **Class License for Value added Service (VAS)** and **Individual License for International Telecommunications Service**.



Competition Milestones in Bahrain

Cellular market

The competition took place by the entrance of MTC Vodafone Bahrain in December 2003.

Fixed market

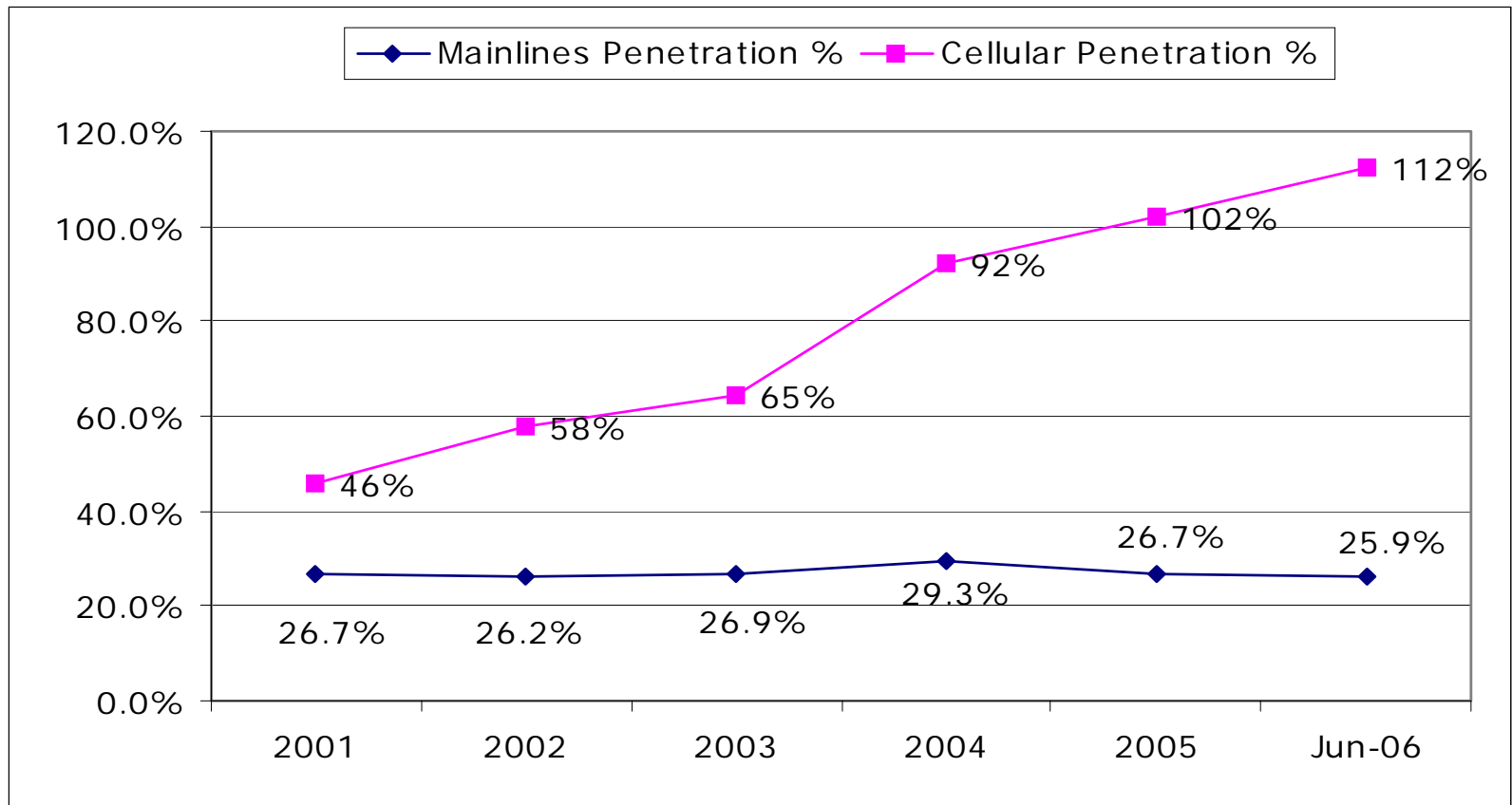
By Q3 2004 investors could apply for the Individual License for National Fixed Services. The first new fixed line license was given in April 2005.

The Class License for Internet Services has been available since 2003. MTC Vodafone Bahrain got the first license in August 2003.

July 1, 2004 marked the full liberalization of Bahrain's telecommunications sector, whereby all industry segments became open to competition.



Bahrain's Cellular and Fixed penetration rates



Source: Operators, Arab Advisors Group

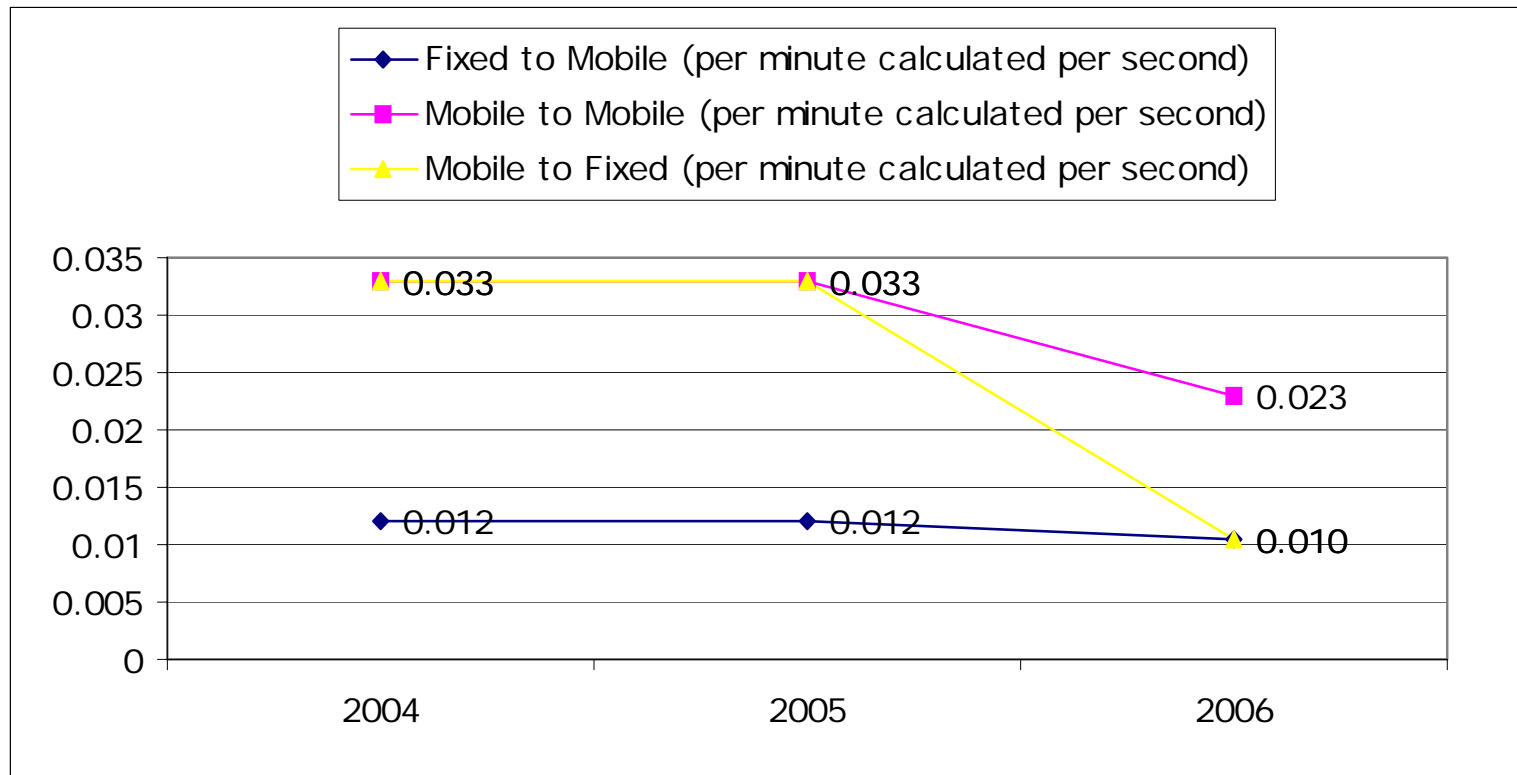


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Bahrain's interconnection rates have dropped substantially between 2005 and 2006.



Note: All rates are in US\$.

Source: Batelco



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Competition sharply dropped Batelco's fixed revenues, yet increased its whole sale business. Overall revenues increased.

US\$ (000s)	2005	2006	Change %
Mobile telecommunications services	260,403	251,977	-3.24%
Fixed line telecommunication services	133,013	107,172	-19.43%
Internet	75,806	91,663	20.92%
Data communication circuits	72,966	80,286	10.03%
Wholesale	11,117	30,300	172.56%
Other	1,215	1,446	19.01%
Total	561,316	623,316	11.05%

The figures represent Batelco's total revenues excluding revenues generated from their operations in Jordan (Umniah and Batelco Jordan). It thus includes the Kuwaiti and Egypt subsidiaries results.

Source: Batelco



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The fruits of competition for end users in Bahrain: Calls to India as low as 0.11 US\$.

	Batelco 123 VoIP card		Mena Telecom		Business communications Network		Kalaam Telecom		Etisacom	
	Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest
USA	0.19	0.19	0.15	0.15	0.13	0.13	0.19	0.13	0.19	0.12
Egypt	0.21	0.21	0.37	0.37	0.21	0.20	0.33	0.33	0.38	0.24
Syria	0.29	0.29	0.82	0.76	0.66	0.33	0.48	0.48	0.33	0.27
Jordan	0.24	0.24	0.30	0.29	0.44	0.33	0.32	0.32	0.33	0.14
Lebanon	0.24	0.24	0.38	0.24	0.33	0.44	0.40	0.27	0.27	0.23
UAE	NA	NA	0.34	0.29	0.29	0.29	0.34	0.34	0.33	0.28
Saudi Arabia	NA	NA	0.38	0.27	0.29	0.29	0.32	0.27	0.29	0.22
India	0.24	0.24	0.23	0.23	0.13	0.13	0.27	0.27	0.17	0.11
Pakistan	0.24	0.24	0.23	0.23	0.12	0.12	0.27	0.27	0.17	0.11
Indonesia	0.24	0.24	0.37	0.23	0.18	0.20	0.52	0.52	0.38	0.20

Source: Operators



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The competitive landscape for ILD

- Batelco's VoIP prepaid card rates on average for the mentioned destinations fall between the highest and the lowest rates available in the market.
- Etisalcom provides the lowest rates for all destinations except for Egypt and Indonesia. Business communications Network provides the lowest rates for the two mentioned destinations.
- Kalaam Telecom charges the highest rates for the Far East countries (Pakistan, Indonesia and India)



Jordan Focus



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Jordan's Regulatory Framework

Fixed Line operators

- Jordan Telecom

Other competitors only provide prepaid calling cards. None is operational in PSTN service provision.

Cellular Operators

- Fastlink
- MobileCom
- XPress (iDEN) – radio trunking
- Umniah

Jordan Telecom is the incumbent in Fixed Services, while Fastlink is the market incumbent in cellular.

Country adopts Individual License and Class License regimes.



Competition Milestones in Jordan

Cellular market

Competition commenced with the entrance of MobileCom in the year 2000, and was boosted in June 2004 with the entrance of XPress to the market. Later in 2005, the market welcomed another GSM player, Umniah.

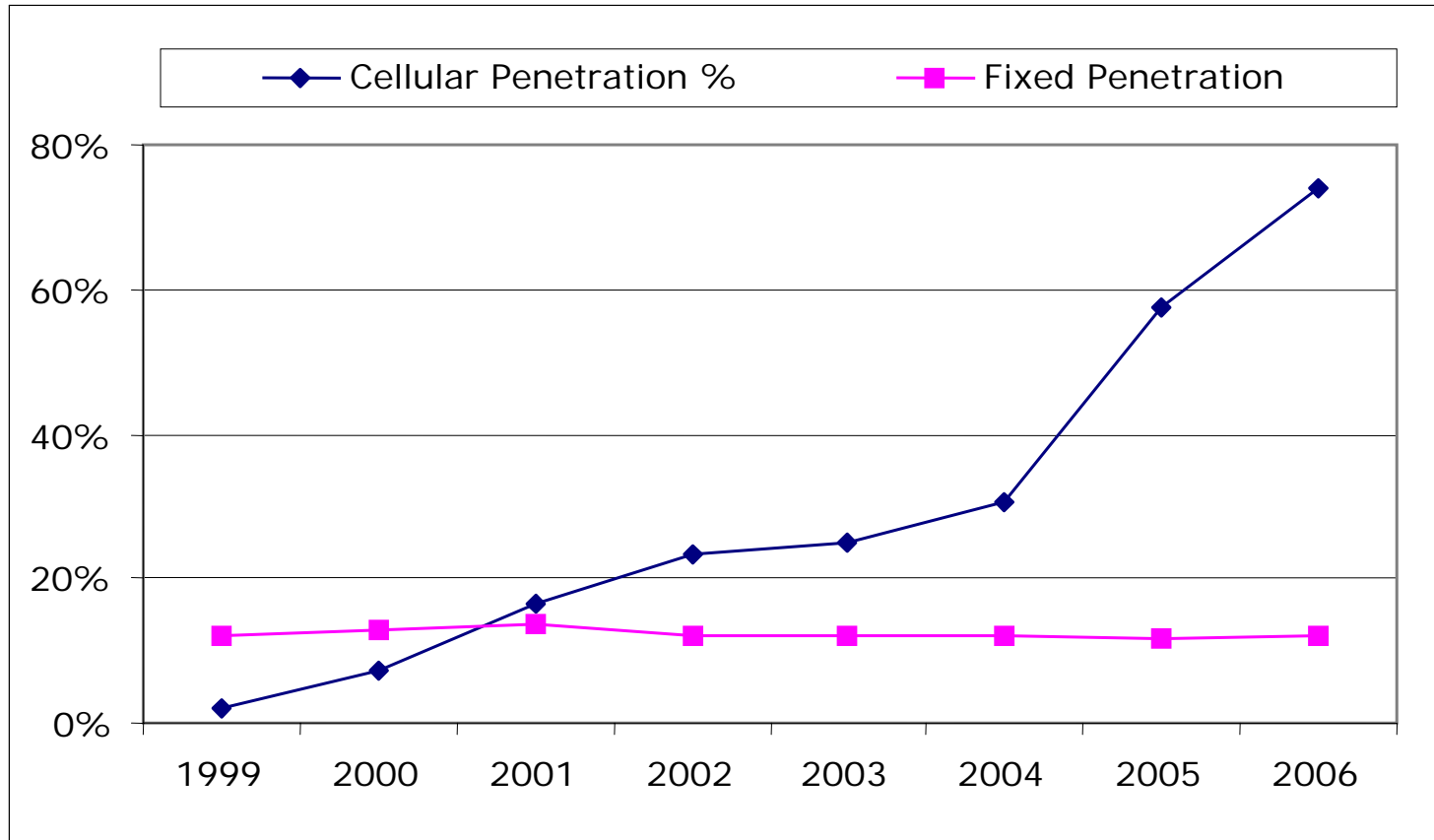
Fixed market

By end of 2004, the exclusivity of Jordan Telecom in the fixed market expired. The regulator liberalized the fixed PSTN and International Long Distance (ILD) services and started the licensing process of new operators. Consequently, all class license holders are allowed to offer VoIP services, whether origination or termination.

Jordan Telecom was the sole operator until May 2005, when Batelco Jordan was granted its own individual license in addition to the class license it had before. With Local Loop Unbundling (LLU) still pending, Jordan Telecom is effectively maintaining its grip on 'last mile' liberalization and actual competition in the fixed line market remains absent. **WiMAX licensees –expected to start in 2007- will change this.** To date, the competition with Jordan Telecom is in originating traffic via prepaid phone cards and terminating ILD traffic.



Jordan's Cellular and Fixed penetration rates



Source: Operators, Arab Advisors Group

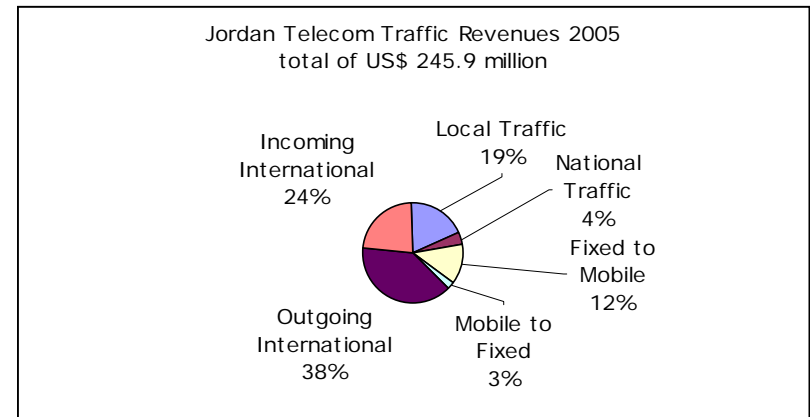
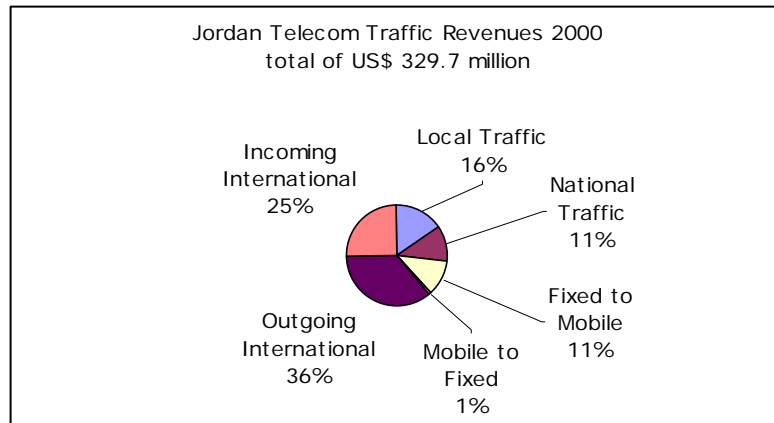


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ILD competition gives more power to Cellular operators in Jordan



- Between 2000 and 2005, Jordan Telecom's fixed traffic revenues dropped by 25.42%. This was mainly driven by rate reductions, fixed to mobile traffic migration, and entry of competing ILD gateways in 2005 (Fastlink and Batelco) in addition to VoIP operators.
- Outgoing international minutes from mobiles made up 64% of total outgoing minutes (50% of revenues), up from 13% in 2000. This means that competing cellular operators generated an estimated 48% of total ILD outgoing minutes of Jordan Telecom. By 2005, they had a choice of where to route this traffic.
- Still cellular operators also face competition from prepaid VoIP operators. E.g. Fastlink reports that 20% of its ILD traffic is now through subscribers choosing prepaid VoIP operators and not Fastlink's gateway. Worthy of note is that not all VoIP operators are interconnected with Fastlink because of setup costs.



Jordan Telecom's Traffic Trends 2000-2005

Type of traffic	CAGR 2000-2005
Local PSTN Traffic	-11%
Local Traffic Revenues	-2%
National PSTN Traffic	-10%
National Traffic Revenues	-23%
Fixed to Mobile Traffic	6%
Fixed to Mobile Revenues	-5%
Mobile to fixed Traffic	39%
Mobile to Fixed Revenues	21%

- Rate of drop in local revenues is less than rate of drop in local traffic due to rate increases (tariff rebalancing).
- Rate of drop in national revenues is higher than rate of drop in national traffic due to rate reductions by the operator which is trying to stem the decline because of fixed to mobile traffic migration.
- Mobile boom caused a solid growth in mobile to fixed traffic and revenues. This is the ONLY bright spot in the traffic patterns.



Jordan Telecom's Traffic Trends 2000-2005

Outgoing ILD Fixed Traffic	-4%
Outgoing ILD Fixed Revenues	-15%
Outgoing ILD Mobile Traffic	58%
Outgoing ILD Mobile Revenues	28%
Incoming ILD Traffic	14%
Incoming ILD Revenues	-7%

While incoming ILD traffic grew solidly, revenues dropped due to lower termination charges. Weighted average termination charge was .126 US\$ in 2005. Current termination rate for international traffic from other licensed operators in Jordan went down to .0155 US\$ in 2006. This indicates even lower revenues in the years to come.

Solid growth in ILD from mobiles where Jordan Telecom's share is around 30% of total subscriber base. This gives major bargaining power to the cellular operators. Fastlink currently routes only 50% of its traffic through Jordan Telecom. Umniah routes all of its traffic through Batelco Jordan.

As operators gained economies of scale, Jordan's regulator has been steadily reducing Interconnection rates in Jordan.

	2003	2004	2005	Current
National	<i>JD piasters per minute 1 piaster is 1.41 US\$ cents</i>			
Fixed termination	<i>Peak</i> 2.5 <i>Offpeak</i> 2	1.4	1	0.92
Mobile Termination				
	<i>Peak</i> 12.5 <i>Offpeak</i> 7.5			
Fastlink	<i>7 piasters/minute as of July 2003</i>	5.5	4.2	3.79
	<i>Peak</i> 12.5 <i>Offpeak</i> 7.5			
Mobilecom	<i>7 piasters/minute as of July 2003</i>	5.9	5.2	3.96
Umniah	N/A	N/A	5.9	5.9
XPRESS	N/A	N/A	5.9	5.25
International	<i>piasters per minute</i>			
Fixed termination	10	9	9	1.1

Note: Fixed termination rates in 2005 and before are weighted averages based on Jordan Telecom agreements with international operators.

Source: TRC, Jordan Telecom



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Jordan Telecom Group maintains its solid profits despite competition. Boom in cellular and data revenues offset fixed revenues decline.

Jordan Telecom Group (Jordan Telecom, MobileCom and Wanadoo) reported positive financial results in 2006. The group's consolidated revenues grew by 2.8% in 2005 and by 3% in 2006 to reach US\$ 511.1 million by yearend. EBITDA grew by 10.9% during 2005, to reach US\$ 240 million by end of 2005, an EBITDA margin of 48.3%.

In terms of profit, Jordan Telecom Group reported a slight growth in the group's net profit. Net profits reached US\$ 123 million in 2006, (a net profit margin of 24%) compared to US\$ 122 million in 2005.

	2004	2005	2006
JT Group			
Revenues (US\$ 000s)	482,394	496,056	511,127
Growth		2.8%	3.0%
EBITDA (US\$ millions)	216	240	238
Growth		10.9%	-0.6%
EBITDA margin	44.80%	48.30%	46.60%
Net profit for the year (US\$ millions)	65	122	123
Growth		87.4%	0.7%
Net profit margin	13.50%	24.50%	24%

Source: Jordan Telecom



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Jordan Telecom's fixed revenues are dropping with a EBITDA margin reaching 46.7% by end of 2006

The fixed service traffic revenues declined over the past few years. Jordan Telecom's revenues reached US\$ 343.8 million in 2006 compared to US\$ 356.5 million in 2005. **This was clearly due to competition in the market, which took its toll on international tariffs and rates.**

	2004	2005	2006
Jordan Telecom			
Revenues	364,085	356,479	343,803
Growth		-2.1%	-3.6%
EBITDA	171	179	160
Growth		4.9%	-10.5%
EBITDA margin	46.90%	50.30%	46.70%

Source: Jordan Telecom



Due to the ADSL boom, Wanadoo's revenues are growing in a healthy fashion, reaching US\$ 15 million by end of 2006

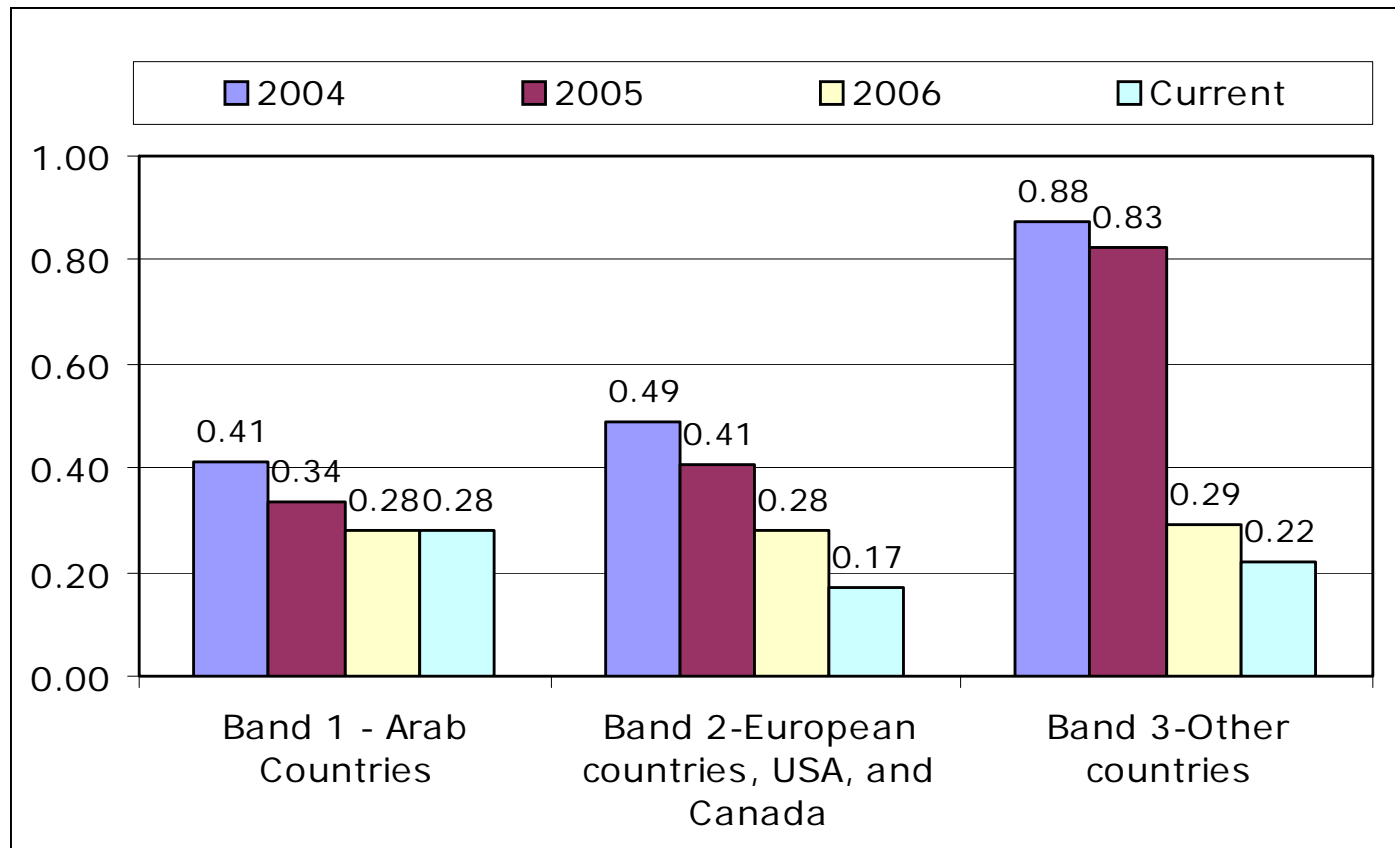
Wanadoo has been recording impressive growth in revenues. Revenues reached US\$ 14.65 million by end of 2006, up from US\$ 10.1 million in 2005, a 44.4% growth. This increase in revenues can be attributed to the enhanced uptake of ADSL services.

As for EBITDA, it had a major increase in 2005 relative to 2004. However, by end of 2006 the EBITDA maintained the same value of 2005 at US\$ 4 million. This had a clear effect on EBITDA margin, dropping to 26% by end by the same period. **Clearly, Wanadoo is "buying market share" by its promotions and rate reductions.**

	2004	2005	2006
US\$ 000s			
Revenues	6,761	10,141	14,648
<i>Growth</i>		50.0%	44.4%
EBITDA	2.3	3.5	3.8
<i>Growth</i>		56.3%	8.0%
EBITDA margin	33.30%	34.70%	26.00%
Source: Jordan Telecom			



Jordan Telecom's fixed International rates reductions



Rates in US\$ per minute

Source: Jordan Telecom



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Jordan Telecom's fixed International rates reductions

- In preparation for competition, and upon its monopoly loss by end of 2004, Jordan Telecom gradually reduced its international rates.
- Between 2004 and 2005, the calling rates to the Arab countries experienced the largest reduction of 18.3%.
- Between 2005 and 2006, and while the calling rates to Arab Countries were reduced to a stable rate (US\$ 0.28 per minute), rates to USA, Canada and Europe had a major reduction of 31.2%.
- This reduction continued sharply during 2006. Call rates to USA, Canada and Europe were further reduced by nearly 40%. Meanwhile, call rates to Arab Countries were kept almost the same at (US\$ 0.28).



The fruits of competition for end users in Jordan: Calls to the US as low as 4.2 cents.

Destination	Jordan Telecom Weinak prepaid card		Swiftel		FarahTel		Batelco		Amman Call	
	Highest	lowest	Highest	lowest	Highest	lowest	Highest	lowest	Highest	lowest
Egypt	14	8	14		14	10	14.8		16	13
Saudi	19	8	10		22	7	16.8	15	16	13
Syria	18	8	18		22	18	17	15	16	13
UAE	19	8	20		23	19	17	15.2	16	13
Palestine	32	29	24		18	14	17.5		24	24
Iraq	10	6	15		17	5	15.5	13	16	13
Lebanon	16	13	12		23	15	17	15	16	13
Kuwait	14	11	10		14	10	17	14.6	16	13
United States	8	5	4		29	3	12.1	6.9	3	

Source: Operators, rates in piasters. 1 piaster is 1.4 US cents.



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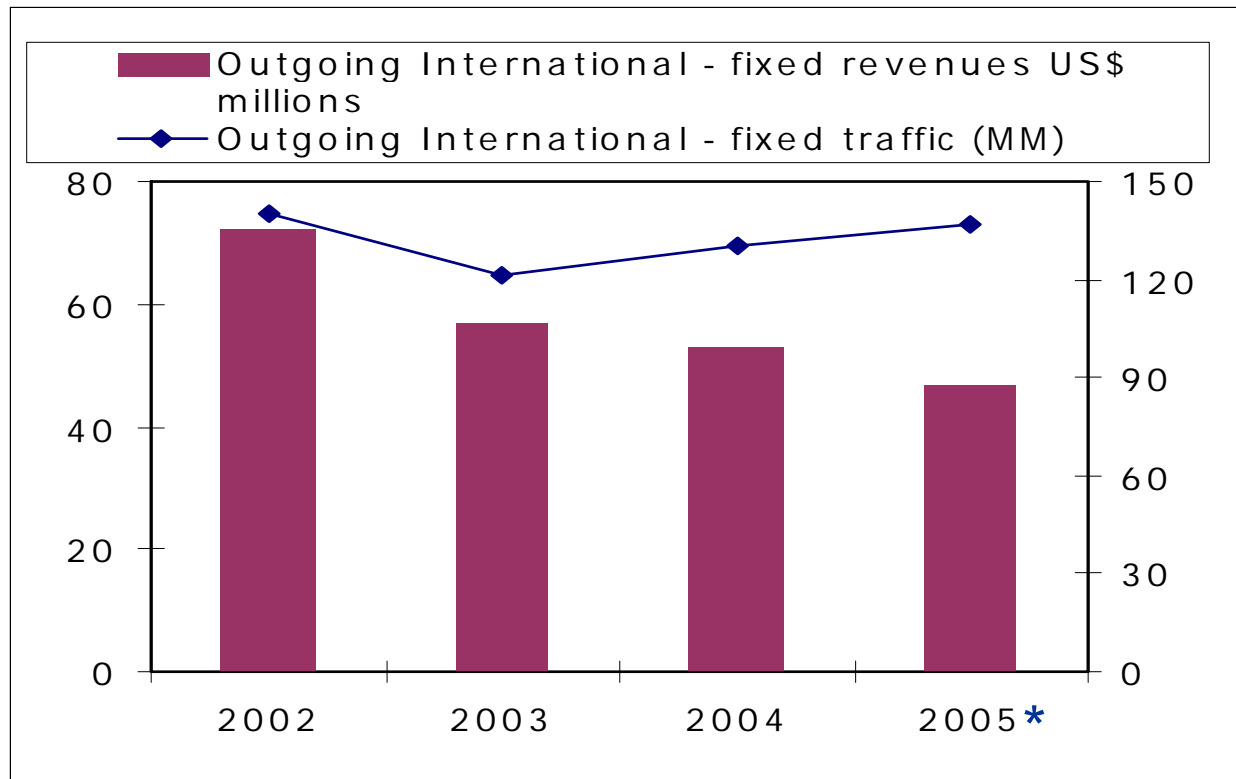
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The competitive landscape for I LD: Prepaid operators enhance consumer choice.

- Jordan Telecom provides its highest minute rate for calls made to Palestine (32 piasters per minute). The lowest minute rate for Palestine is provided by Farahtel (14 piasters per minute) which is 56.3% lower than that of Jordan Telecom.
- Jordan Telecom provides its lowest minute rate for call made to United States (5 piasters per minute). The lowest minute rate for USA in the market is 3 piasters per minute and is provided by two operators: FarahTel and Amman Call.
- Jordan Telecom's average minute rate per destinations listed is **16.7 piasters per minute for its highest rates per destination**, and **10.7 piasters per minute for its lowest rates per destination**.
- The average minute rate for all the market is **16.5 piasters per minute for the highest rates per destination**, and **12.7 piasters per minute for the lowest rates per destination**.



Early impact of International gateway monopoly loss: Outgoing international traffic and revenues.



* Fastlink's international gateway started its operations in late 2005. Batelco Jordan also started in mid 2005.

Source: Jordan Telecom

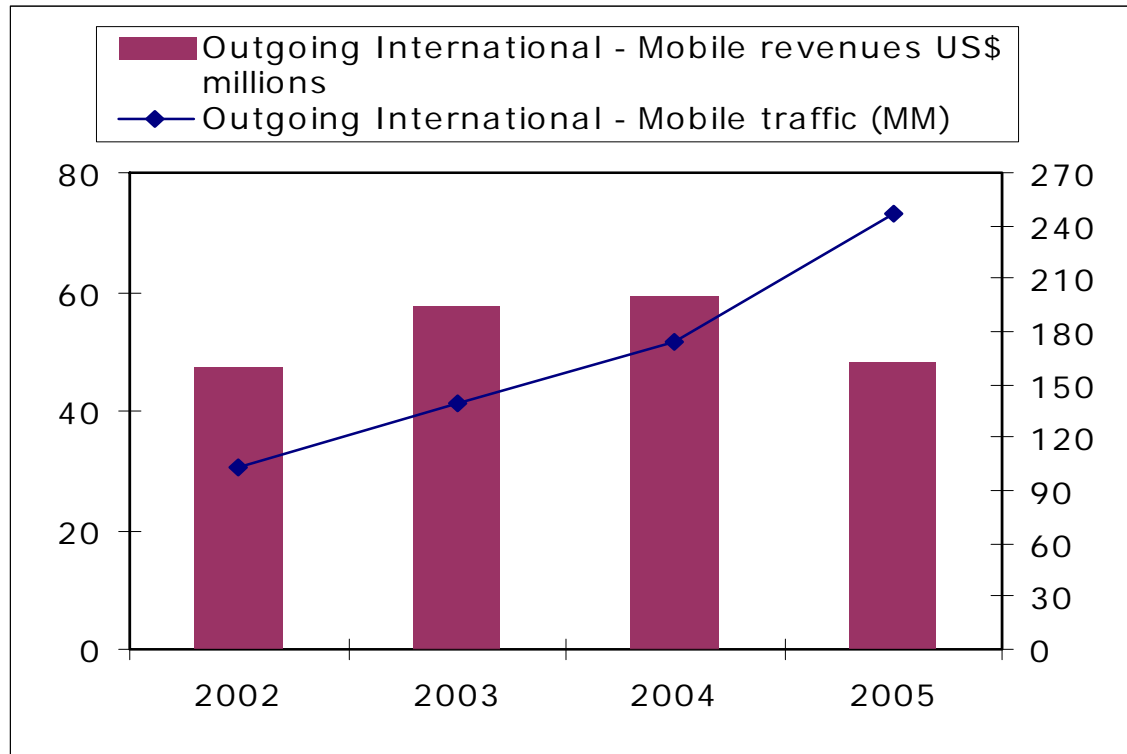


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Early impact of International gateway monopoly loss: Outgoing international mobile traffic and revenues.



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Source: Jordan Telecom

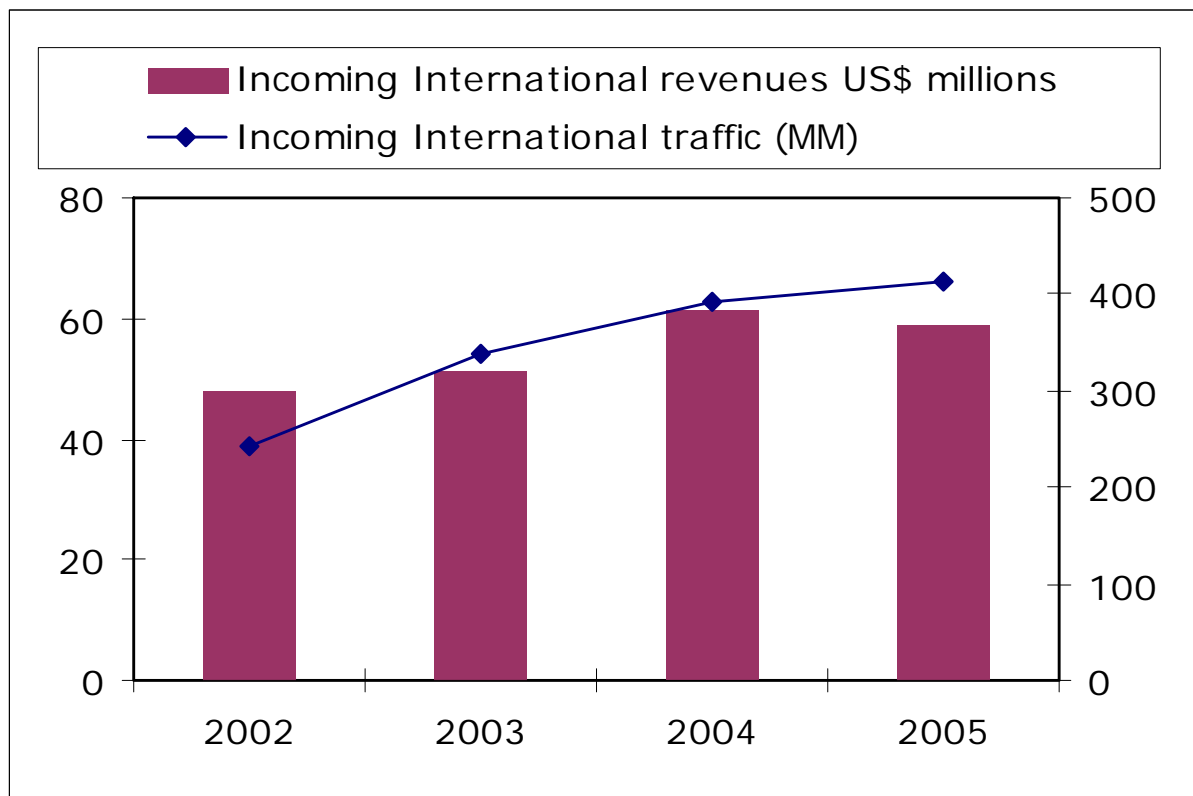


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Early impact of International gateway monopoly loss: Incoming international traffic and revenues.



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Source: Jordan Telecom



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Saudi Arabia's Regulatory Framework

Fixed line Operator

- Saudi Telecom
- Saudi Telecom remains the only provider of PSTN in Saudi Arabia
- Fixed market is set for full liberalization with ongoing fixed tenders.

Cellular Operators

- Al Jawwal(STC Subsidiary)
- Mobily(Ettihad Etisalat)
- Bravo (iDEN)
- Currently there is an ongoing tender for the third cellular (4th cellular) license. Winner expected in May 2007.



Competition Milestones in Saudi Arabia

Cellular Market

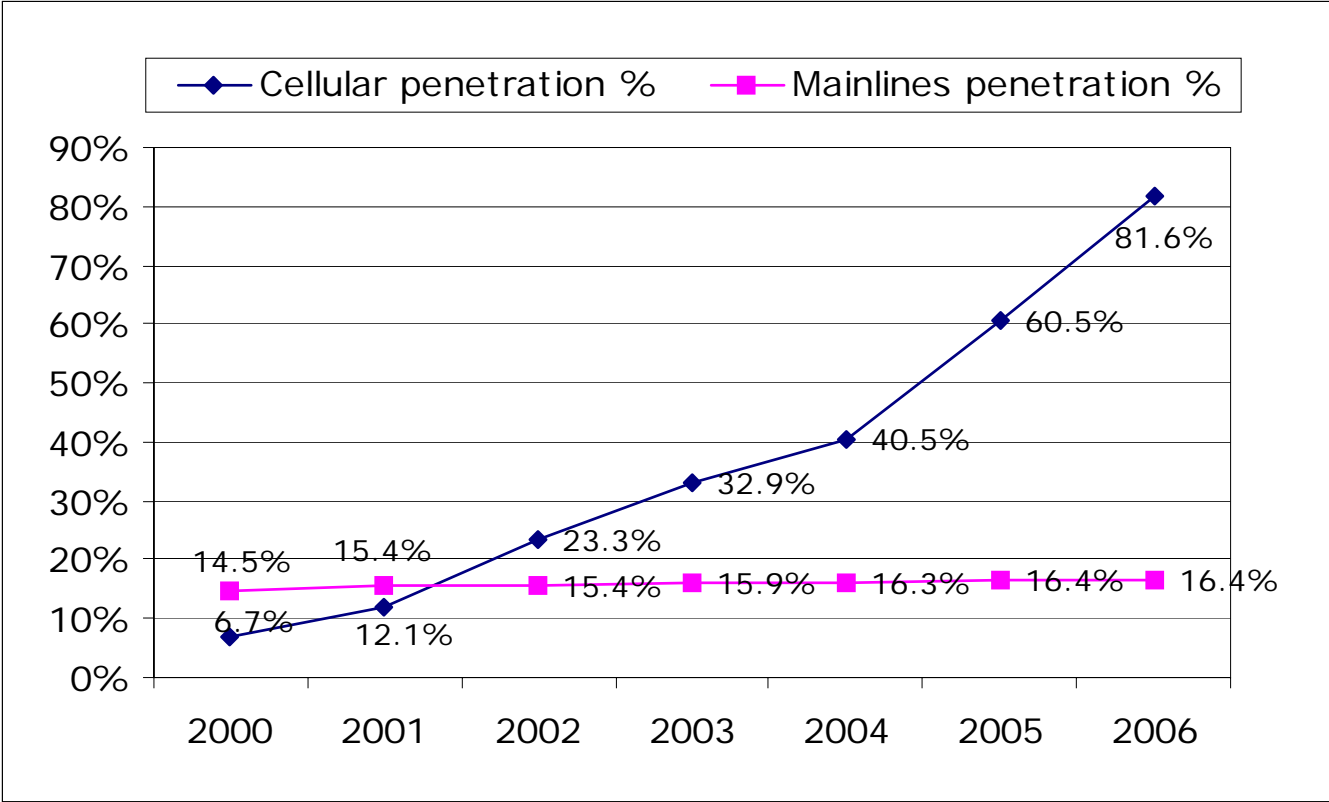
- The competition started by the entrance of Mobily (Ettihad Etisalat). It was awarded the 2nd GSM license and a 3G license in 2004
- The cellular market is expecting the entrance of another competitors when the winner of the new license is announced later this year.

Fixed market

- Saudi Telecom remains the only provider of PSTN lines in Saudi Arabia. It is expected to face competition in 2007/2008.
- Two datacomm licenses already offer services. They started on a limited fashion in 2005.



Saudi Arabia's Cellular and fixed penetration rates



Source: STC, Mobily



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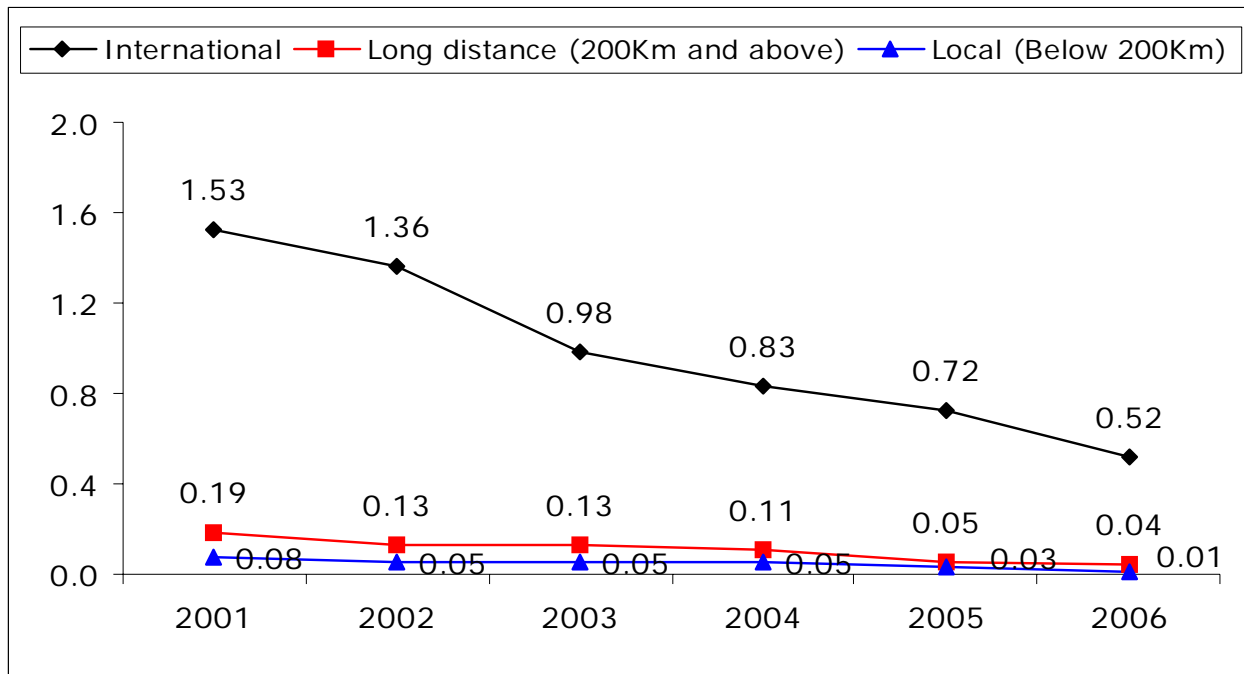
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Illegal VoIP booths in KSA provide extremely cheap telephone calls that attract expatriates.

- Some individuals get VoIP gateways from abroad, install them illegally in a two or three computers LAN, and configure all the necessary accessories within the network. These network booths are usually installed in areas with high concentration of foreigners.
- Once the network is hooked up to the internet, each computer or phone set can have access to dial a long-distance international number, and talk for minutes and even hours with a really tempting price.
- Sources in the market estimate that revenues of each booth can reach up to SR20,000 which is equivalent to \$5,000 per month, which is a huge amount of money compared to a \$250 salary attained by an employee working as an operator in Saudi Arabia.
- Punishments in KSA for such an act for every beneficiary could be serious sanctions carried out by the government



The average phone call rate for an International phone call has dropped to US\$0.52 in 2006 down from US\$ 1.52 in 2001. Still, VoIP provides savings of more than 90% on some routes like US and India.



Source: Saudi Telecom, Arab Advisors Group



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