3G Mobile Services in the Arab Markets - Regional Issues and Challenges

Dr. Ibrahim A. Kadi

Professor of Communication & Electrical Engineering,
King Saud University, Riyadh, KSA
Senior Member IEEE

Topics

☞ **Mobile Telecommunication**

☞ **Mobile Communications in the Region**

☞ **Mobile Data Services**

☞ **Regional Issues for 3G**

☞ **Conclusions**

Mobile Communications
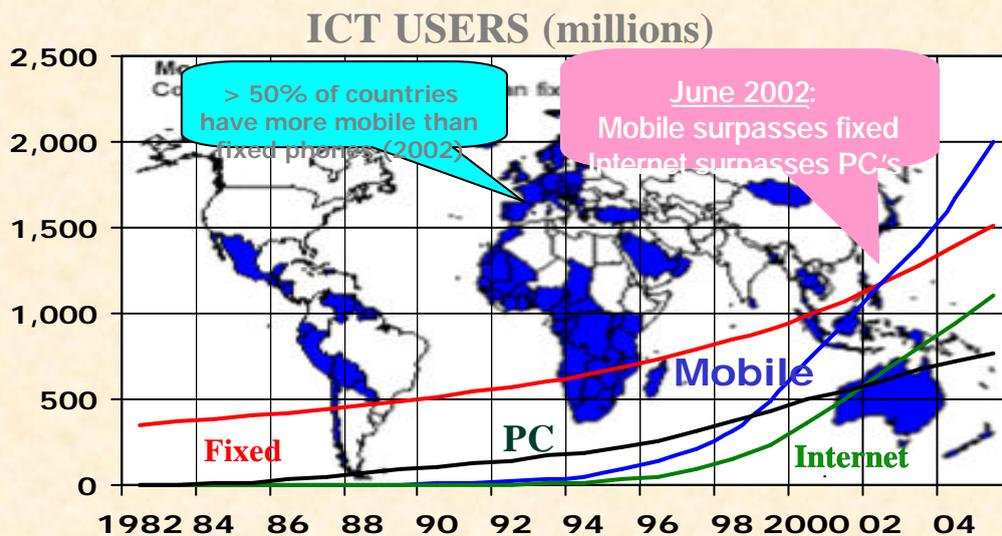
☞ **FASTEST GROWING SECTOR (1991-2003):**

■ Users :   (16? 1329) 83 fold   (45% AAGR)

■ Revenues : ($19B ?   414B) 22 fold (30% annually)

☞ **DIFFERENT SERVICES/SYSTEMS:**

■ Land Mobile   (e.g., GSM, IS-95)

■ Satellite Mobile   (Thuraya)

■ Voice & Data   (GSM, 3G)

■ Data only   (INMARSAT-C)

■ Paging only   (ERMES, FLEX)

■ Positioning   (GPS, Glonas)

The Market Just keeps Growing

ICT USERS (millions)

> 50% of countries have more mobile than fixed phones (2002)

June 2002: Mobile surpasses fixed Internet surpasses PC's

Mobile

Fixed

PC

Internet

1982 84   86   88   90   92   94   96   98 2000 02   04

Source: ITU

Mobile Comm. History

1946	**First Mobile Service (USA)**
	(FM, One Base Station, 80 Km area, 120 KHz BW)
1965	**MTS (Bell) :** ● **Direct Dialing** ● **Full Duplex**
1970's	**Cellular Concept**
1980's	**First Generation (1G) Systems (AMPS, NMT)**
1980's	**Development of First Digital System (2G): GSM**
1991	**GSM enters Service**
1998	**First Mobile Satellite Service (Iridium!!!!)**
1998-….	**3G System Standardization (ITU: IMT2000)**
2001	**First 3G Services launched (Korea, Japan)**

Mobile Overtakes Fixed
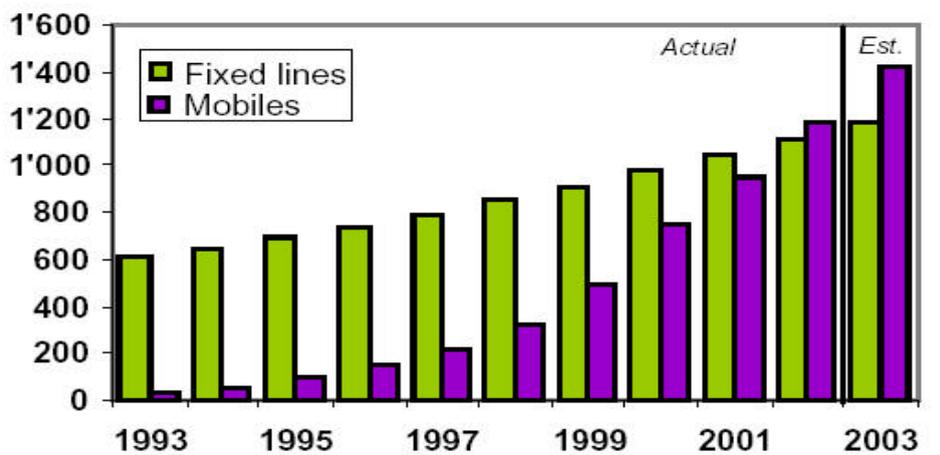
Source: ITU World Telecommunication Development Report 2002: Reinventing Telecoms

Mobile World Growth

Subscribers (M)   As % of fixed

(Source: ITU & EMC)

Values: 2% 3% 4% 6% 9% 13% 20% 27% 38% 54% 75% 91% 102% 110%

Bars: 215, 318, 490, 740, 955, 1155, 1329

Years: 1990 91 92 93 94 95 96 97 98 99 '00 '01 '02 '03
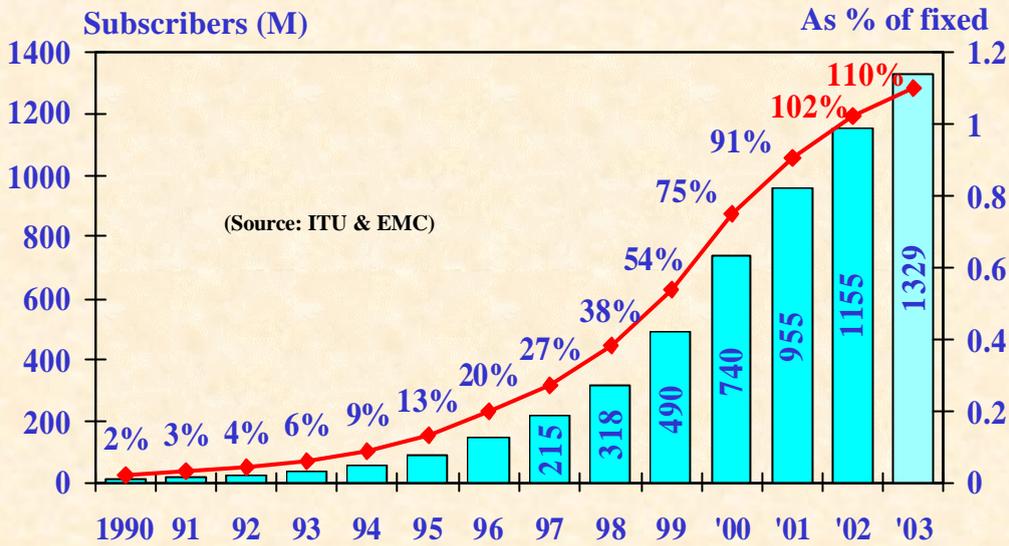
Mobile World Indicators (May 2003)

☞ **Total Subscription …………… 1217 million**

    ⇨ **2 % Analog ………   24 m ⇩ ⇩**

    ⇨ **98 % Digital ……….. 1195 m ⇧ ⇧ ⇧**

    ⇨ **71 % GSM ……….   863 m ⇧ ⇧ ⇧**

    ⇨ **< 1 % UMTS ……….   1 m ⇧**

☞**GSM Data Subscribers (MMS & GPRS) … 25 million**

                    (3% of GSM, 2% of all Mobile)
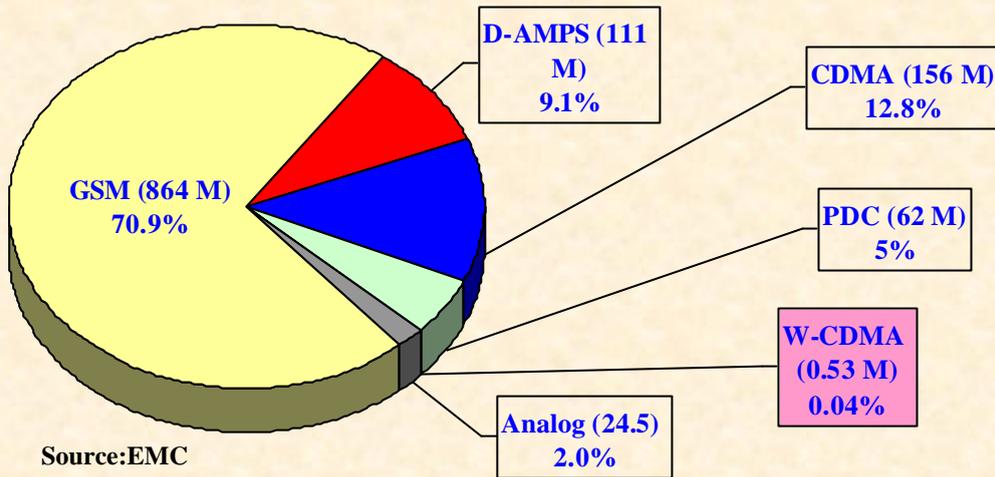
                               (Source: EMC)

Mobile Systems Market Shares
1218 Million (May 2003)

D-AMPS (111 M)
9.1%

CDMA (156 M)
12.8%

GSM (864 M)
70.9%

PDC (62 M)
5%

W-CDMA (0.53 M)
0.04%

Analog (24.5)
2.0%

Source:EMC

Major Issues / Challenges

- **Frequency Spectrum Shortage**

- **Difficult Mobile Channel Environment**

- **Growing Demands / Market Pressure for :**

  → **Subscription / Air Time (Capacity)**

  → **Better Service   (Quality / Coverage)**

  → **Newer Services   (Data, Messages)**

  → **Security / Privacy   (SIM, Encryption)**

  → **Lower Prices   (Competition)**

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Spectrum Shortage

- **Single Most Critical Issue in Mobile Growth / Performance (QoS)**

- **Limited Allocations for Land Mobile -**
  - **Non-mobile Services Allocated Most of Spectrum Below 1 GHz**
  - **GSM Spectrum 890-960 MHz, 1800 MHz , 1900 MHz**
  - **New 3G Allocations (160 + 200MHz) - WRC 2000, Istanbul**

- **Spectrum License Costs**

- **Need to Maximize Spectrum Utilization Efficiency**

- **Basic Law of Economics: Limited Supply, Growing Demand**

- **Basis for any Meaningful Pricing Strategy:**
    - Set Tariffs / Air Time Cost as per Spectrum Used
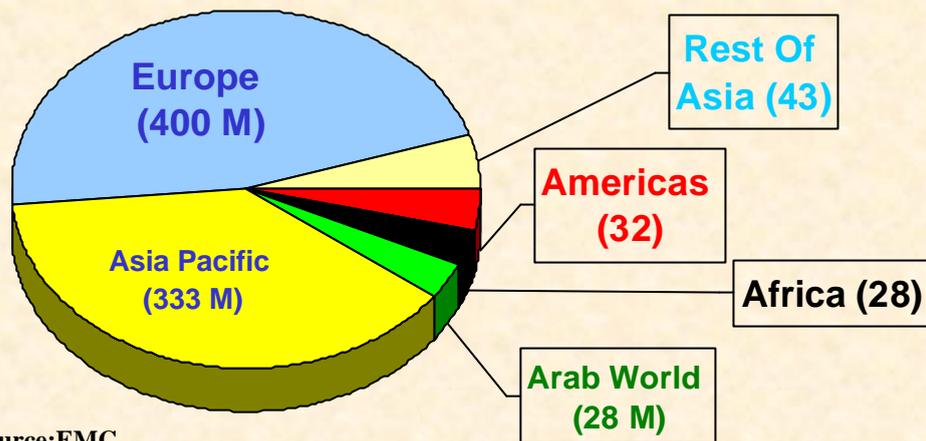
Topics

☞ **Mobile Telecommunication**

✓ **Mobile Communications in the Region**

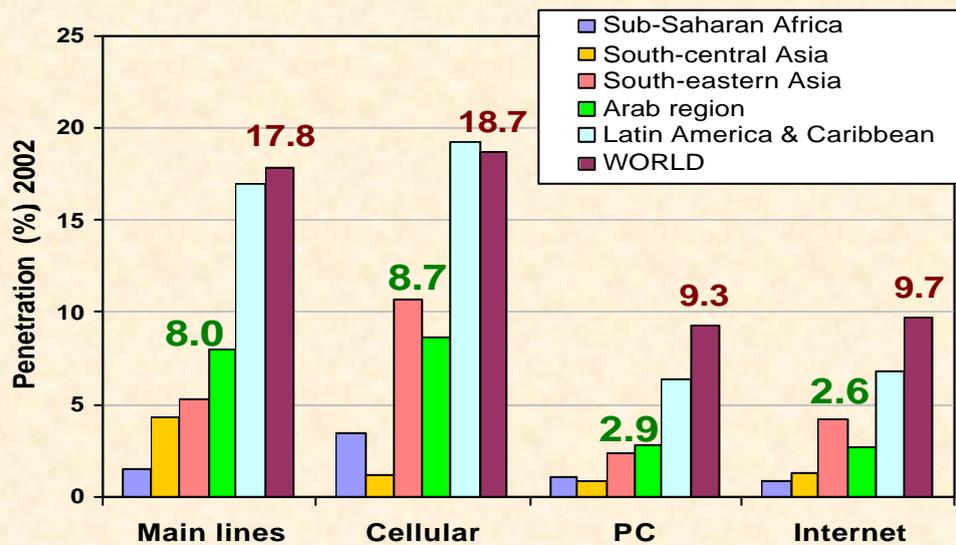☞ **Mobile Data Services**

☞ **Regional Issues for 3G**

☞ **Conclusions**

World GSM Subscribers
864 Million (May 2003)

Europe (400 M)

Rest Of Asia (43)

Americas (32)

Africa (28)

Asia Pacific (333 M)

Arab World (28 M)

Source:EMC

ICT -- How do we compare?

Legend:
- ☐ Sub-Saharan Africa
- ☐ South-central Asia
- ☐ South-eastern Asia
- ☐ Arab region
- ☐ Latin America & Caribbean
- ☐ WORLD

Y-axis: **Penetration (%) 2002** (0, 5, 10, 15, 20, 25)

Main lines: 8.0 (Arab region), 17.8 (WORLD)

Cellular: 8.7 (Arab region), 18.7 (WORLD)

PC: 2.9 (Arab region), 9.3 (WORLD)

Internet: 2.6 (Arab region), 9.7 (WORLD)

Source: ITU World Telecommunication Indicators database

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✓ **Mobile Data Services**

☞ Regional Issues for 3G

☞ Conclusions

Mobile Evolution (1/2)

☞ **First Generation (1G)**   **(1980s)**
- ■ **Analog - voice only**
- ■ **FDMA: AMPS, NMT, TACS**

☞ **Second Generation (2G)**   **(1990s)**
- ■ **Digital (voice, Data, SMS)**
- ■ **TDMA (GSM, PDC, DAMPS)**
- ■ **CDMA (IS-95)**

☞ **Data-Enhanced Second Generation (2.5G)   (2000s)**
- ■ **Wireless Access Protocol (WAP)**
- ■ **General Packet Radio Service (GPRS): 171 Kb/s (Max)**
- ■ **Enhance Data GSM Evolution (EDGE): 384 Kb/s (Max)**

Mobile Evolution (2/2)

☞ **Third Generation (3G)** **(2000s)**

- ■ **ITU Standardization IMT-2000** **(1998 - ……)**

- ■ **Mostly CDMA (UMTS = W-CDM0A, CDMA2000)**

- ■ **384 Kb/s - 2 Mb/s**

- ■ **Multimedia, Mobile Internet**

- ■ **First Service Launch in Japan and Korea**
  - » **NTT DoCoMo - Sept. 2001 (delayed from May)**
  - » **Competitors (DDI & J-phone) - Q1 2002**
  - » **dual-mode Hansets (PDC + 3G)**

SMS : the Success Story!

- ■ **Simple, limited, But Exceptionally popular.**

- ■ **Standard GSM Service:** "m-mail" or "g-mail"

- ■ **Worldwide - Dec 2002:** 30B g-mails (1SMS/user/day)

- ■ **Offered by nearly all Regional GSM Operators:**
  - ⇨ **Very Popular especially among Youth**
  - ⇨ **Expanding Revenue Source**

- ■ **Regional Limitations:**
  - ⇨ **Language Barriers / Arabic SMS length / Handsets**
 - ⇨ **Voice Centric Societies**
  - ⇨ **Reading / Typing Skills**

SMS : the Success Story!

Monthly SMS traffic

Source : EMC Research
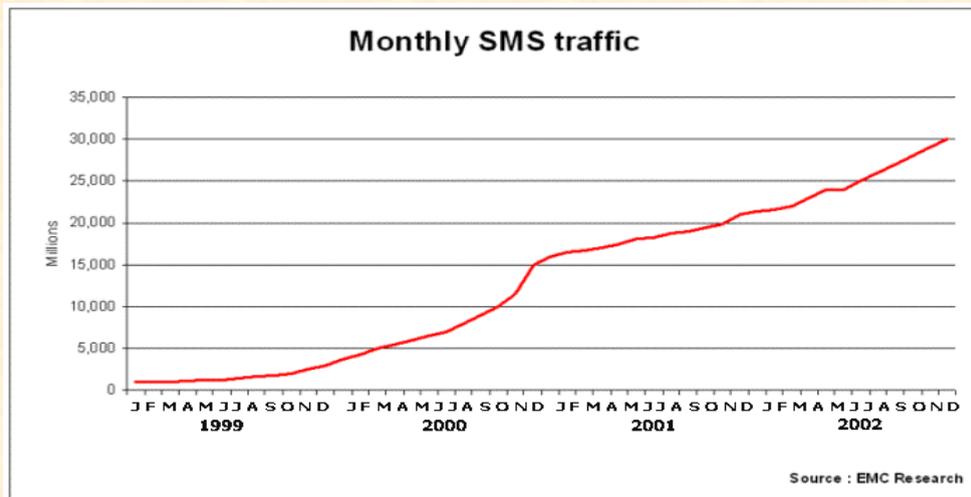
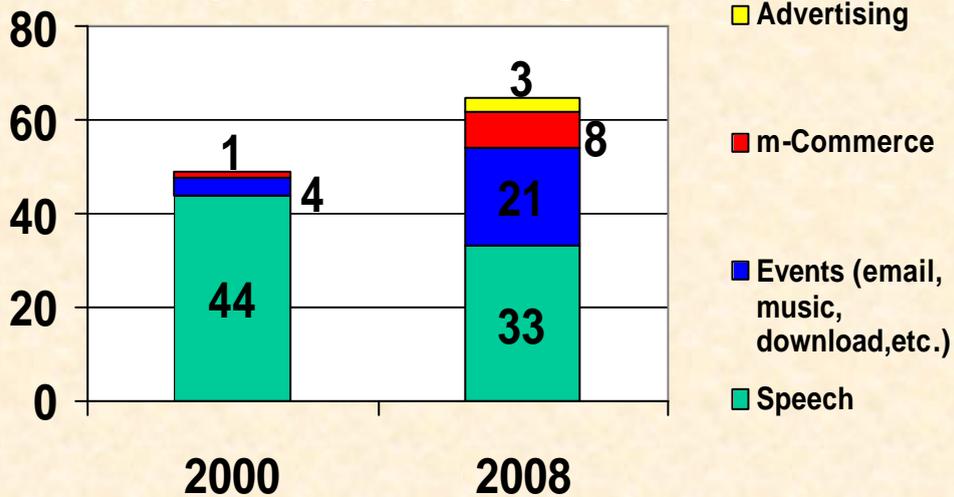
SMS: Build on the Success…(MMS etc.)

■ **Enhance SMS Revenues to Boost ARPU**

■ **MMS the next wave – Logical extension of SMS**

■ **Innovative SMS (&MMS) Services, e.g.:**
- ⇨ **Ring Tones, Logos and Caricatures**
- ⇨ **Instant SMS vs. delayed SMS (off peak at lower rate)**
- ⇨ **Market Segmentation**
- ⇨ **SMS Commercial Ads. (local, metropolitan, National)**
- ⇨ **Local and Culture-Specific Messages**
- ⇨ **SMS-to-Email & vice-versa, Email Message Notification**
- ⇨ **SMS-to-Voice (Reading Problems, Arabic Screen) - Net2Voice**
- ⇨ **Voice-to-SMS (Typing Problems, Non-Arabic Keyboard)**

GSM Data Services

Growth of GSM Data Services

Source: EMC World Cellular Data Metrics, Jun 2003
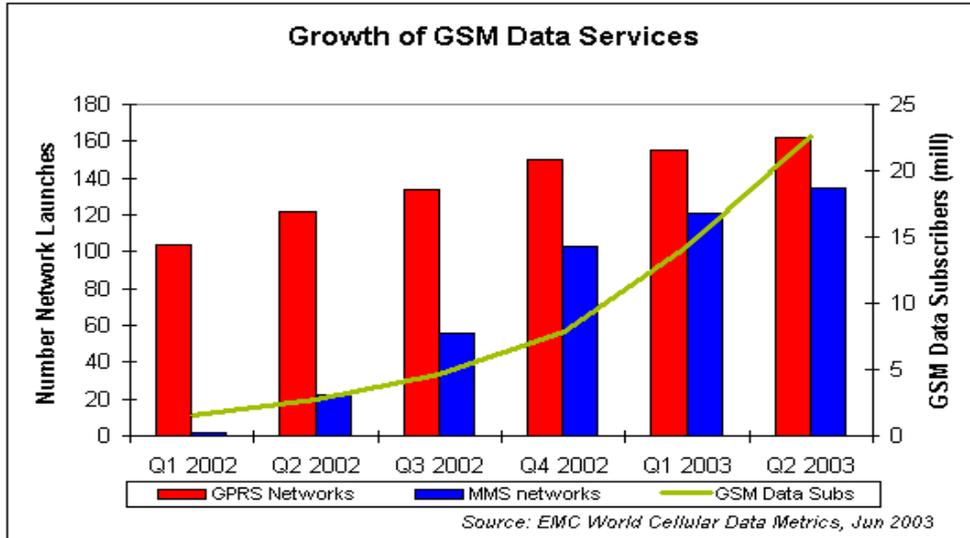
Multimedia Revenue Growth

Forecast average revenue per user, Europe (Euro)

- □ Advertising
- ■ m-Commerce
- ■ Events (email, music, download,etc.)
- □ Speech

Source: Wireless Internet Report, Morgan Stanley Dean Witter

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Wireless Access Protocol (WAP)

- **WAP (introduced in Europe in 2000) was a disappointment:**
  - ✓ **Poor data speeds / Shortage of handsets**
  - ✓ **Limited Useful Content / Service Providers**
  - ✓ **Enhanced by GPRS**

- **Additional limitations in the Region:**
  - ✓ **Low Penetration (Mobile & Internet)**
  - ✓ **Language Barriers: Content and Arabic Handsets**
  - ✓ **Voice Centric Societies**
  - ✓ **No Real Consumer Demand**

- **Bleak Future for WAP (alone) in the Region**

General Packet Radio Service (GPRS)

- **Introduced in limited markets in Europe (2002) :**
  - ✓ **Improved Data Services / Speeds**
  - ✓ **A Step on GSM Migration Path to 3G**
  - ✓ **Shortage of Handsets / Applications**
  - ✓ **Uncertain Commercial Success**

- **Same Additional limitations in Arab World: Penetration, Language, Voiced-Centric, illiteracy, Content, Demand**

- **Questionable Future in the Region but necessary for: image and eventual (?) migration to 3G**

- **Recommendation for Regional Operators: limited targeted pilot deployment**

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☞ Conclusions

3G Issues/Challenges
for Regional Operators
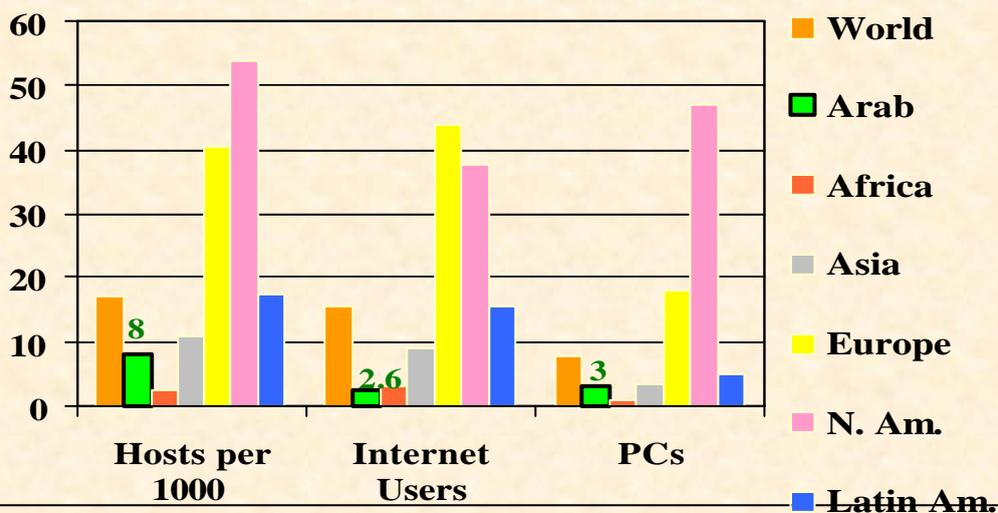
◎ Market Issues – Is the Market Ready

◎ Business Case / Business Issues

◎ Service Issues

◎ Regulatory Issues

◎ Deployment Issues

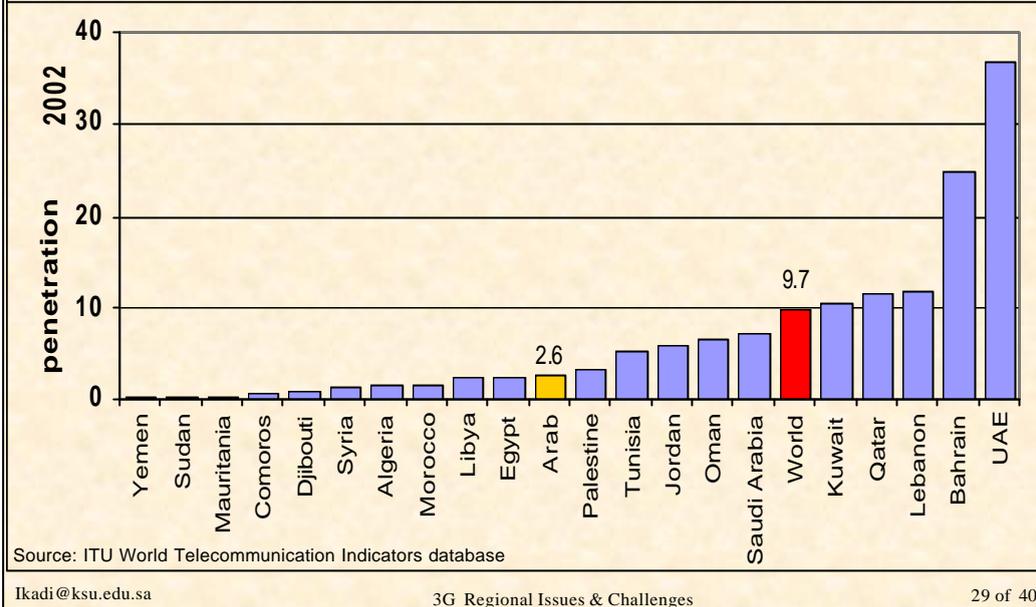◎ Technology Issue

◎ Consumer / Cultural Issues

Market Issues

☑ **Is the Market Ready**

☑ **Demand (current and future, Real vs. perceived)**

☑ **Geo-market Studies,**

☑ **Customer profiles:**

    ☞ **>50% of current Arab subs are prepaid (low ARPU)**

    ☞ **Data Users are Youth/Students with low budgets**

☑ **Internet Penetration in the Arab World**

☑ **Affordability of 3G Services**

IT Digital Divide

PCs and Internet (per 100 inhabitant)

Legend: ■ World ■ Arab ■ Africa ■ Asia ■ Europe ■ N. Am. ■ Latin Am.

Categories: Hosts per 1000 (Arab value: 8), Internet Users (Arab value: 2.6), PCs (Arab value: 3)

Internet users per 100 people

Source: ITU World Telecommunication Indicators database

Business Issues

☞ **Is there a Business Case for 3G Service**

☞ **Is it VIABLE?**

☞**Competing Solutions:**
   e.g. Broadband, WLL (Wi-Fi or 802.11x)

☞ **Capital Expenditure (CAPEX),**

☞ **Operating Expenditure (OPEX),**

☞ **Financing, Revenue Growth**

☞ **others: Competition, Pricing, market**

   segmentation, Promotion / marketing

Regulatory Issues

☞ **Licensing**

☞ **Spectrum Availability / Cost**

☞ **Interconnection / Roaming**

☞ **QoS Requirements**

☞ **Content Monitoring / Control**

☞ **Competition Policy**

☞ **Others**

Service Issues

◎ **Service Portfolio**

◎ **Content**

◎ **Coverage**

◎ **Handover**

◎ **Roaming**

◎ **QoS / Priorities**

◎ **Third Party Services**

Deployment Issues

☞ **Which Standard:**

     W-CDMA (UMTS) vs. CDMA-2000?

☞ **Migration Strategies**

☞ **Co-siting**

☞ **Dual or Tri-Service (2G/2.5G/3G)**

☞ **Handover**

☞ **CAPEX / OPEX**

Technology Issues

☞ **Standards**

☞ **Mature Products / solutions**

☞ **System Integration / Support**

☞ **Proprietary Solutions**

☞ **Rapid Technological Advance**

☞ **Falling Cost of technology solution**

Consumer/Cultural Issues (1/2)

☞ **Regional Consumers:**

➔ **High Illiteracy Rate**

➔ **poor typing inclination / Skills**

➔ **are Voice Centric**

☞ **Leisure/casual Use in the Region rather than Business:**

➔ **Busy Hours in the evening and week-ends rather than during business hours**

➔ **SMS popularity / heavy use thru forwarding (jokes/ greetings) rather than typing new messages**

Consumer/Cultural Issues (2/2)

☞ **Local content (info + Language/presentation)**

☞ **English language limitations**

☞ **Arabic Language Peculiarities**

☞ **User Equipment / mobile sets:**

➔ **Data enabled (for 3G)**

➔ **Arabic enabled**

➔ **Availability / desirability / Affordability**

☞ **Consumer Awareness / Education**

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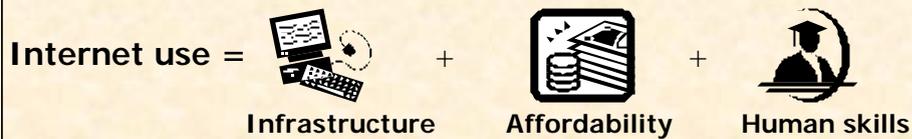# Factors on Internet Use

Hard factors
- Infrastructure
- Pricing/affordability

Soft factors
- Language/content
- Education
- Literacy

Internet use =   Infrastructure   +   Affordability   +   Human skills

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✓ **Conclusions**

Conclusions (1/2)

- **Build on the Success of SMS: & MMS**
  - → **enhanced SMS-Services**
  - → **Multi-media Message Services (MMS)**

- **Mobile Data: Regional Markets not Ready**

- **3G is the Future on the long term (8-10 yrs), but:**

too many <u>Uncertainties</u> in the Short-Medium Term

Conclusions (2/2)

- **Recommendation for Regional Operators:**

  ✓ **GPRS gradual deployment targeting specific customer segments**

  ✓ **Adopt UMTS (GSM success globally & regionally, interoperability, easier migration, roaming, economy of scale)**

  ✓ **Keep Close Watch,**

  ✓ **Push for 3G Spectrum,**

  ✓ **Minimum Investments**

  ✓ **Reassess position in 3-5 years**

Acknowledgements to

✓ **ITU, QTEL, Seminar Organizers/Sponsors**
✓ **King Saud University (KSU)**
✓ **Advanced Electronics Co. (AEC)**

☺ ☺ ☺   **THANK YOU**   ☺ ☺ ☺

for your attention

……… and QUESTIONS ……..