Early Mobile Internet Services

Portal with Personalized Services

Mobile Commerce
(Transactions)

- Banking
- Trading
- Ticketing
- Shopping

Mobile -WWW
(Browsing/streaming)

- Information
(news, sports, ...)
- Entertainment
(Music, Games, …)
- Navigation Services

Mobile Messaging

- E-mail
- Voice-mail
- SMS, MMS
- Video/Image-mail
(postcards)
- Instant Message

Positioning

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3G Applications

3G is Mobile Internet, but it’s still also capacity and voice

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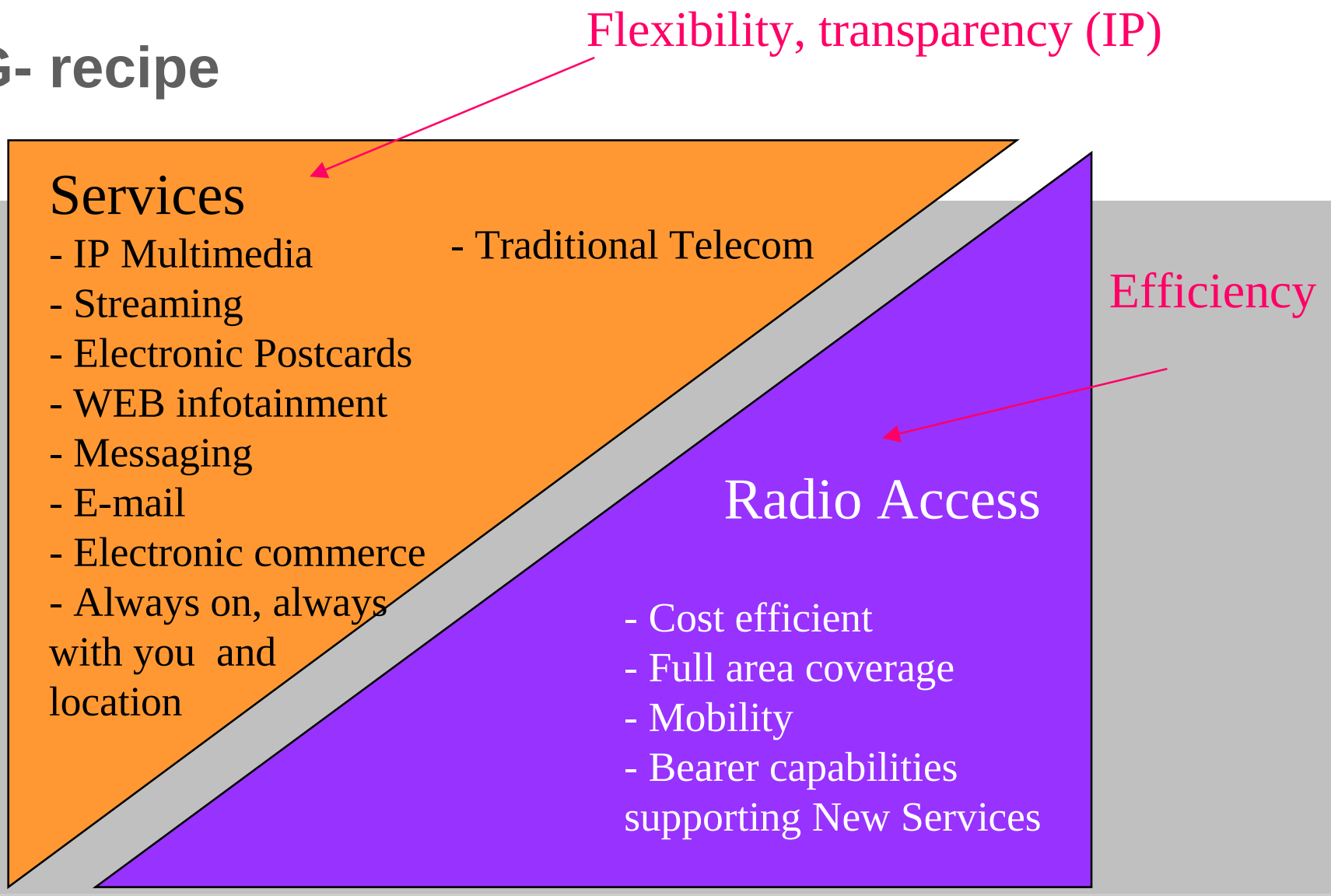
3G- recipe



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WCDMA - Optimised 3G Radio Access

- Global technique for New/Modified FDD spectrum
- High data rates in 5 MHz
  - 384 kbps with wide-area coverage
  - 2 Mbps with local coverage
  - Evolution path, e.g. HSDPA => 8Mbps packet data
- High service flexibility with support of multiple parallel variable-rate services on one connection
- Fast and efficient packet access
- High packing density, about 70 simultaneous users (voice or web browsers) per 5 MHz TRX

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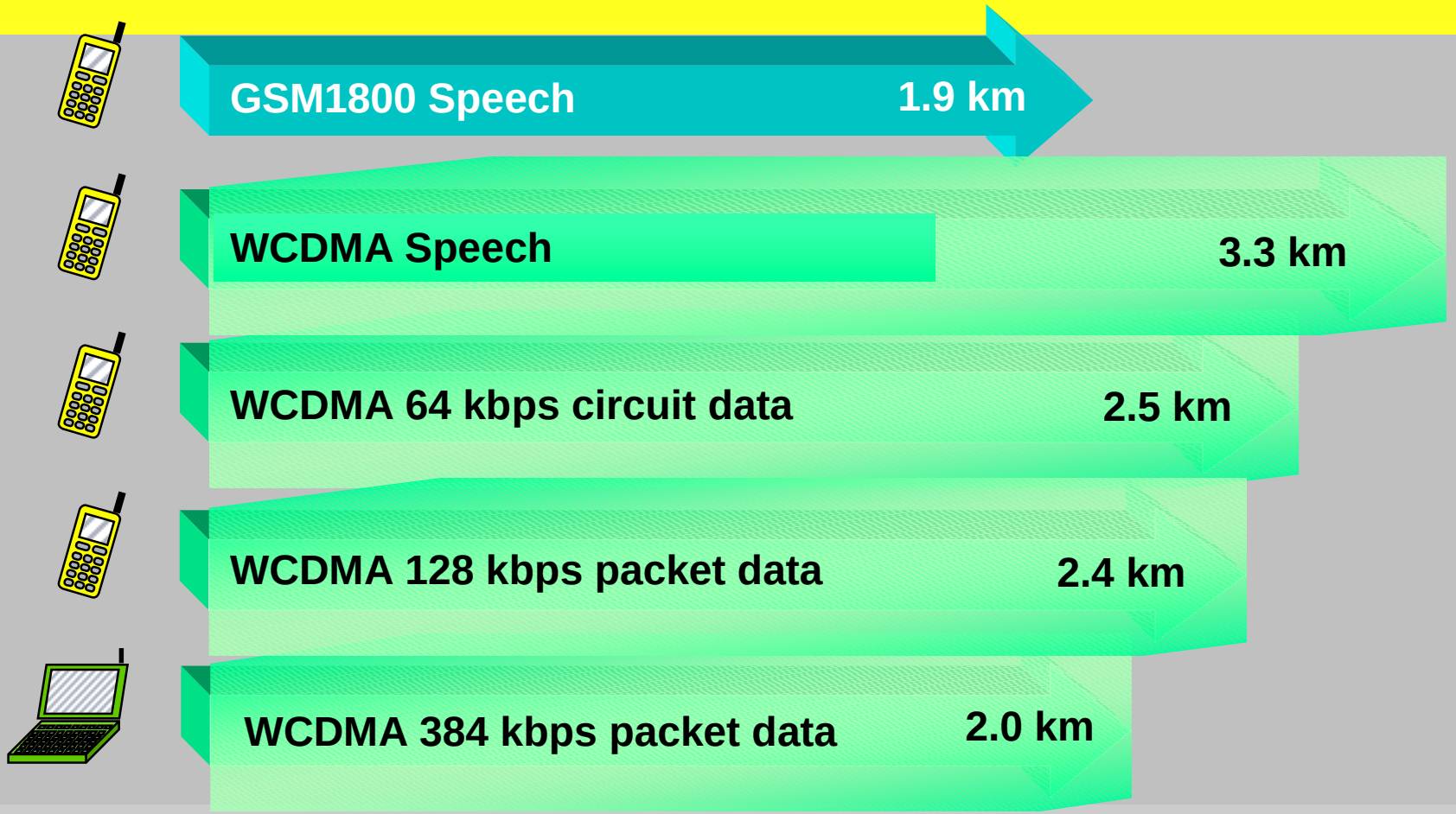
Coverage comparison

GSM1800 vs. WCDMA



Note: Pedestrian B 3 km/h channel model, Urban environment and outdoor coverage

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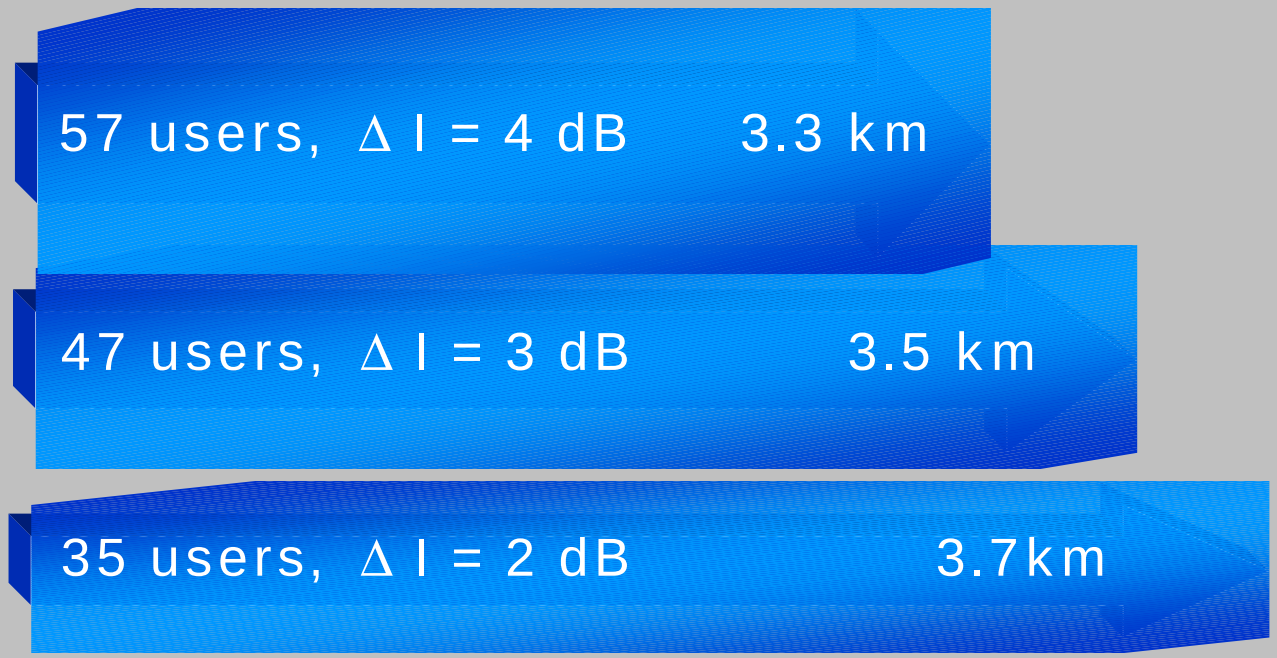
Capacity vs. Coverage Comparison



Note: based on 5 MHz bandwidth, 12.2 kbit/s speech (50% voice activity), Pedestrian A and B 3 km/h channel model (50% each), Outdoor coverage in an urban environment

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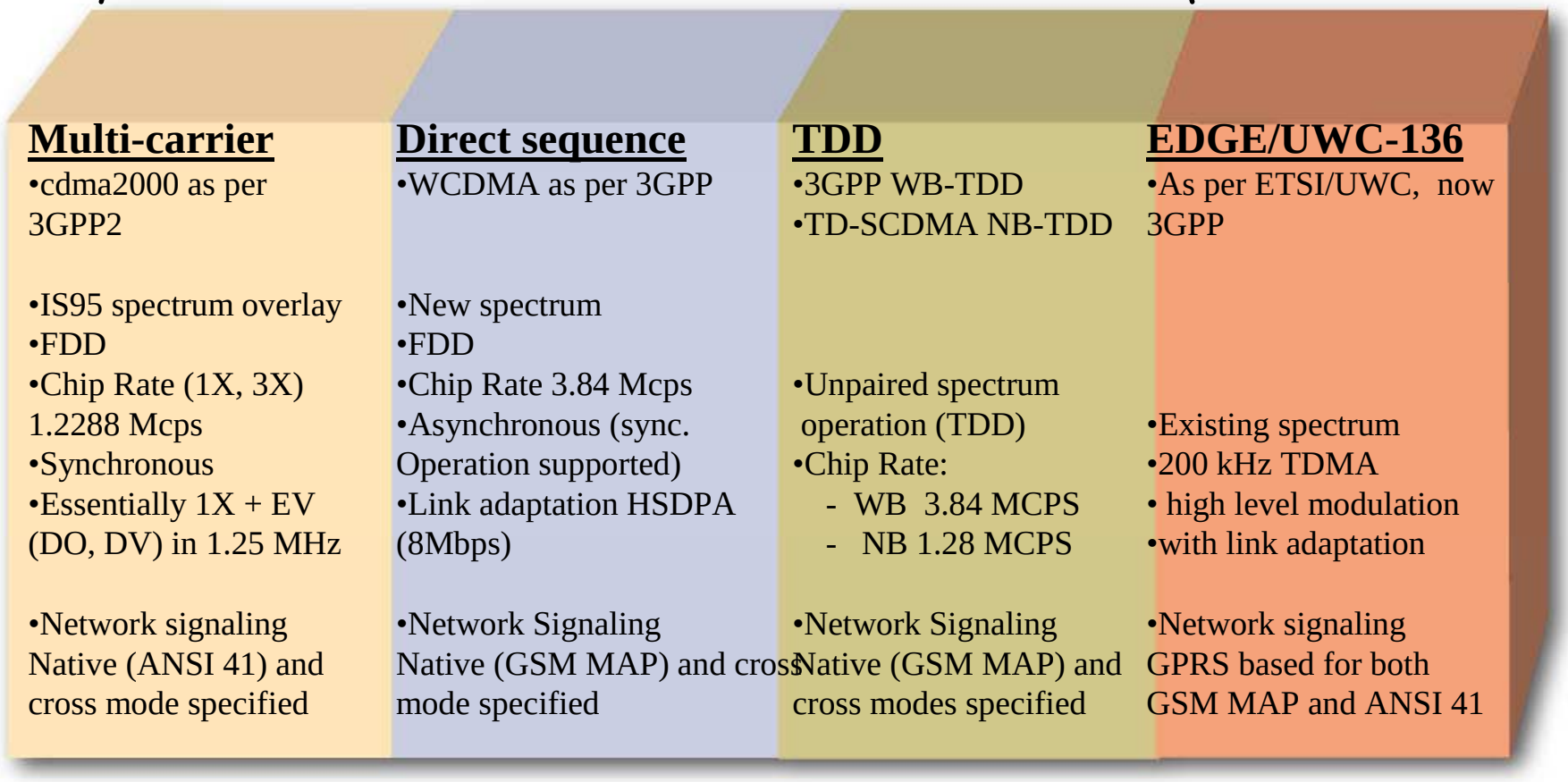
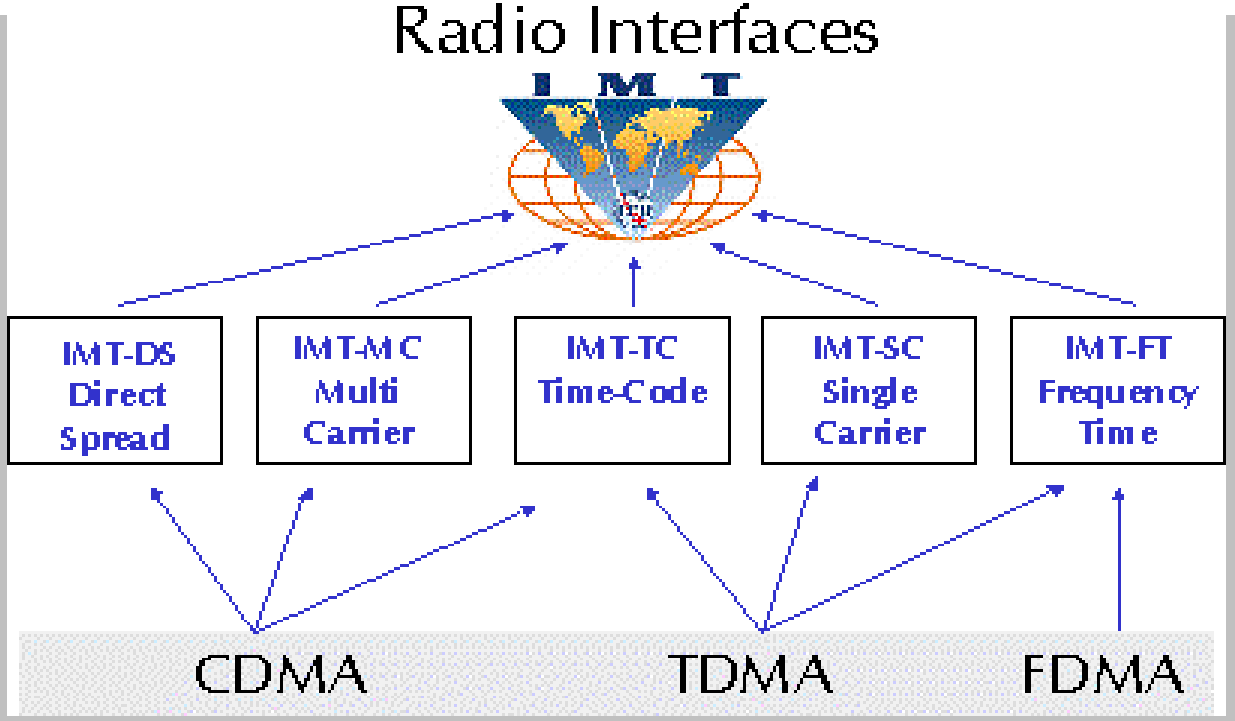
Global 3G radio access standards

Wideband CDMA **TDMA**



Multi-carrier	**Direct sequence**	**TDD**	**EDGE/UWC-136**
•cdma2000 as per 3GPP2	•WCDMA as per 3GPP	•3GPP WB-TDD •TD-SCDMA NB-TDD	•As per ETSI/UWC, now 3GPP
•IS95 spectrum overlay •FDD •Chip Rate (1X, 3X) 1.2288 Mcps •Synchronous •Essentially 1X + EV (DO, DV) in 1.25 MHz	•New spectrum •FDD •Chip Rate 3.84 Mcps •Asynchronous (sync. Operation supported) •Link adaptation HSDPA (8Mbps)	•Unpaired spectrum operation (TDD) •Chip Rate: - WB 3.84 MCPS - NB 1.28 MCPS	•Existing spectrum •200 kHz TDMA • high level modulation •with link adaptation
•Network signaling Native (ANSI 41) and cross mode specified	•Network Signaling Native (GSM MAP) and cross mode specified	•Network Signaling Native (GSM MAP) and cross modes specified	•Network signaling GPRS based for both GSM MAP and ANSI 41

IMT-2000 Terrestrial Radio Interfaces



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Technical note: The radio interfaces shown in the figure are commonly known by the following names: UTRA FDD (WCDMA) for IMT-DS; cdma2000 for IMT-MC; UTRA TDD, and TD-SCDMA for IMT-TC; UWC-136 for IMT-SC; and DECT for IMT-FT.

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Harmonization => Clear roles defined for IMT2000 Radio Access Standards

- WCDMA - Global technique for New FDD spectrum. Efficient 5 MHz technology, with evolution plan, e.g. HSDPA -> 8 Mbps packet data.
- cdma2000 - 1.25 MHz migration/overlay approach for existing IS95 operators/spectrum
- EDGE, with GPRS, important GSM/TDMA capacity booster
- Cross modes indeed standardized, but very limited market interest.
- TDD complement to FDD for e.g. Local Loop or Local Area (Range, Syncronization and TDD->FDD Interference)

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Mobile Internet – how it all fits together

- WAP – a small screen browser
- GPRS – packet data, “always on”
- 3G – wideband to the pocket
- Bluetooth – wireless connection between devices

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Rethink the value of the mobile phone

- It’s a personalized communications & information service
- It’s Remote control of the office & home
- It’s the ultimate e-retail channel to people
- It’s a ”Networked Wallet”
- It’s a ”Networked Camera”
- It’s a ”Networked Navigator”
- It’s a ”Networked Walkman”
- It’s a … …

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Two Internet industries are being formed

- Different access conditions, but same service mechanisms