

# Mobile

## recent trends

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## Introduction

- Introduction
- Disruptions
- Multiplay
- Handset as fashion
- Content is king
- Conclusions

## Disruptions to business

- New spectrum bands
- New wireless services
- New tariff plans
- Bundling of services
- Changes in fashion

## 2.5 G

- Beyond voice and SMS to data & value-added services
- IP interface
- Requires upgrading of:
  - network infrastructure
  - handsets
- Requires development of new business models:
  - raw IP access
  - value-added services
- Extending the value chain to include:
  - service providers
  - content aggregators
  - Mobile Virtual Network Operators (MVNOs)

## GPRS

- An unregulated service
- Within existing licences
- No obligations on roll-out
- No obligations on data speeds
- No obligations on third party access
- Often very few lessons learned for 3G

## Mobile payments

- Payment:
  - add to monthly bill
  - deduct from stored credit
  - link to a credit card
- By means of:
  - RFID tag
  - SMS
- The alternative is to use Internet payment systems
- India
  - Tata and ICICI
- Japan
  - DoCoMo and Sony
- South Korea
  - Moneta
- Malaysia
  - Nokia and Visa
- USA and UK
  - PayPal

## GSM Association

- m-commerce has particular benefits in emerging economies
- Capturing the unofficial cash float
- Eliminating the need to carry cash
- Reducing exposure to robbery
- Enabling the advancement of micro-loans
- Facilitating loan repayments
- Enabling the payment of utility bills
- Minimizing money-laundering opportunities

[http://www.gsmworld.com/documents/services/micro\\_payment.pdf](http://www.gsmworld.com/documents/services/micro_payment.pdf)

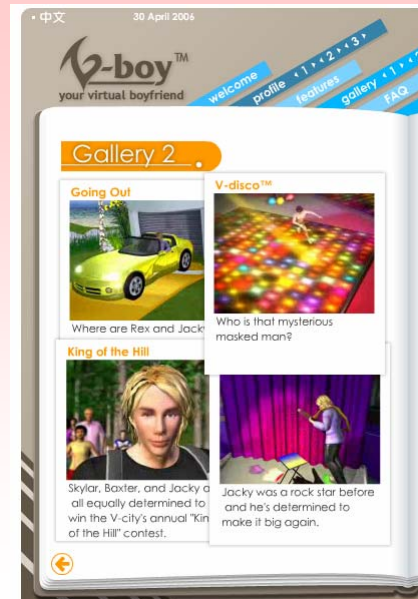
## Mobile content

- Ring-tones, downloads and streaming music remain a substantial market
- Consumers are gradually using more features of handsets
- Growing interest in:
  - mobile video content
  - mobile searching
- Beginnings of social networking

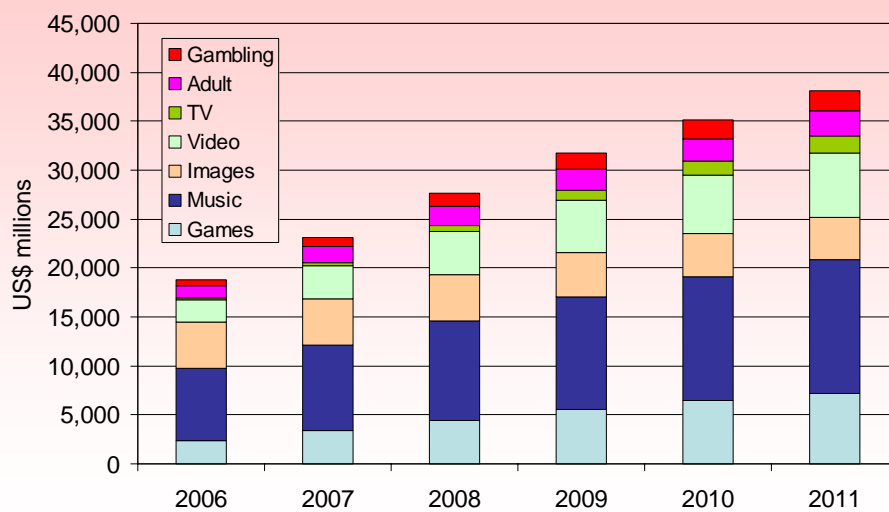
# Artificial Life

- Developer of games:
  - standalone
  - multi-user games
- Games within games
- Examples:
  - Virtual Girlfriend
  - Virtual Boyfriend
  - Virtual Emperor Penguin
- Launched with MNOs in:
  - Brunei
  - China
  - Hong Kong, SAR
  - Malaysia
  - Singapore
  - Taiwan

<http://www.artificial-life.com/>  
<http://mobileindustry.biz/>



# Global mobile entertainment

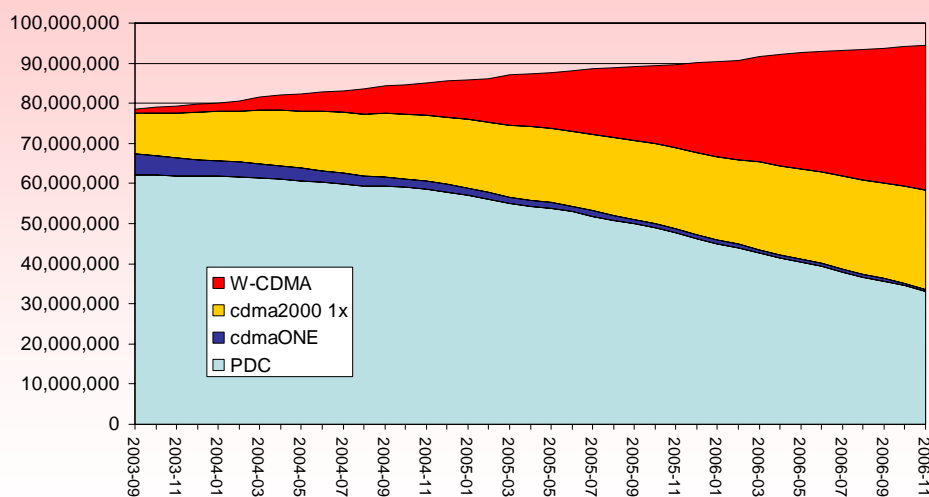


Source: Informa.

## 3G

- Games, Gambling and Girls
- Greed, Gullibility and Grief
- Location Based Services (LBS)
- Entertainment:
  - streamed audio
  - streamed video
  - competition with digital broadcasting

## Japan switches to 3G



## China

- Beijing Olympics opening on 08/08/08 will be a showcase for 3G
- Everyone is waiting for the licences
- Ministry of Information Industries (MII) seems undecided between:
  - technology neutrality, effectively WCDMA
  - support for TD-SCDMA, local industry
  - a lot of foreign and domestic lobbying
- Forecasts of 50 to 100 million customers by 2010
- Will drive the export market
- Many emerging and developing markets will copy

## 3.5G – HSDPA – HSUPA

- 3G is “too slow”, so migration to 3.5G
- Customers experience 0.8 to 1.5 Mbits/s downstream
- Soon to add high speed upstream
- 138 operators committed to HSDPA in 63 countries
- Commercial services in 50 countries
- Plans or services include:
  - Cambodia, Hong Kong, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Sri Lanka, and Taiwan
  - Romania, Slovak Republic, Namibia and South Africa
- An extra-regulatory service:
  - no commitment to coverage
  - no obligations on speed delivered to customers

## cdma450

- Old mobile voice band now being recycled
- Excellent propagation characteristics:
  - into buildings
  - across rural areas
- Choice of technologies:
  - CDMA
  - OFDM
- Examples include: Romania, Sweden and Ukraine

## Location Based Services

- Originally the big hope for 3G revenues
- Adoption has been painfully slow
- Now there are many alternatives:
  - Global Positioning System (GPS)
  - Bluetooth
  - Ultra Wide Band (UWB)
  - Radio Frequency Identification (RFID) tags
  - Wi-Fi
  - identification of the mobile cell
  - embedded systems in cars



## Audio and video streaming

- Material can be:
  - on-demand
  - interactive
  - stored
- Broadcasting for news, sports and music:
  - satellite
  - terrestrial
- Wi-Fi and WiMAX where demand is not immediate:
  - residential
  - public hot-spot

## Digital broadcasting

- Competing standards:
  - Digital Audio Broadcast (DAB)
  - Digital Multimedia Broadcast (DMB)
  - Digital Video Broadcast (DVB)
- Satellite and terrestrial
- Can carry vast amounts of entertainment and other services
- Very much cheaper than cellular for delivery to customers
- Alternative and competing channel to customers

## South Korea – DMB

- Early mover in Digital Multimedia Broadcasting
- Services launched:
  - S-DMB Satellite
  - T-DMB Terrestrial
- Platform competition
- Combined with mobile telephony in one handset
- Early lessons now available

## Wireless VoIP

- Multiple possible devices:
  - lap-top computer
  - Personal Digital Assistant (PDA)
  - dedicated Skype phone
- Wi-Fi chips are cheap and easily added to consumer electronic devices (n.b., games consoles)
- New multimode handsets:
  - GSM and UMTS
  - Wi-Fi with SIP

## Wireless VoIP

### Nokia E-Series handsets

- Wi-Fi when in:
  - corporate offices worldwide
  - Home
  - Hotels, etc.
- SIP client
- otherwise GSM
- being combined with iPASS, a global Wi-Fi supplier

### France Iliad “free.fr”

- Any Wi-Fi hotspot with “freebox”:
  - your home
  - your neighbours
  - people in the next street, village or town
- Free calls to fixed networks in France and many countries
- €29.99 per month  
<http://adsl.free.fr/>

## VoIP over 3G

- Theoretically possible, but questions of:
  - pricing
  - download limits
  - operators filtering out VoIP
- Some deals for Skype over 3G:
  - Hutchison Whampoa (a.k.a. Three)
  - E-Plus (KPN)
- Enormous reluctance of 3GSM operators:
  - but how long can they resist the pressure?
- For the present, roaming charges make VoIP very expensive to use over 3G

## WiMAX

- Unlicensed bands:
  - often still not opened for use
  - 2.4 GHz and 5.8 GHz
- Licensed bands (e.g., 3.5 GHz):
  - very few issued so far
- Economies of scale not yet achieved
- A big push from Intel “World Ahead”

<http://www.intel.com/go/worldahead>

## Multiple networks

- Personal Area Networks (PANs)
- Car networks
- Residential networks
- Cellular wireless networks
- Other wireless networks
- Fibre optic cables for high bandwidth

## Recent handset features

- Camera  
(create video clips for YouTube and MySpace)
- Stored music and video
- Receiver for digital mobile radio and television
  - satellite and terrestrial
- RFID for identification:
  - access controls
  - payments and banking

These can, but often do not, generate network traffic.

## Devices

- Sony Mylo (my life online)
  - Wi-Fi, Keyboard, memory (music and video)
  - web browser, instant messaging and Skype
- Sony Ericsson W700i
  - GSM and GPRS
  - Bluetooth and IR
  - 0.5 to 2.0 GB storage
  - MP3 and MP4 player
  - camera 2 Megapixels
- Moneta:
  - stored credit
  - credit card
  - with RFID
  - all on a mobile phone
- Slingbox:
  - bridges your cable or satellite TV to the Internet
  - remote access from a fixed or mobile device
  - can be linked to Personal Video Recorder (PVR)

## Conclusions

- GSM was a success as a scaleable and cheap technology
- The upgrade path from to 3G was too complicated
- The pre-paid business model worked well for voice, but does not seem plausible for value-added services
- There are non-cellular routes to customers
- The world is now more complex

## Issues

- Is the business model:
  - simple Internet access?
  - “walled garden”?
  - value-added services?
- Is there an enabling environment for content producers?
- Is there a regulatory framework for content?

# Thank you

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