

# Introduction to Mobile Systems

MN1374

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(1)

Lecture notes Available on: [www.brunel.ac.uk/~nemstaam](http://www.brunel.ac.uk/~nemstaam) and WebCT

## Sources:

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M-Commerce – Technologies, Services and Business Models - Norman Sadeh – Wiley (2002)

Mobile Business Strategies – Jouni Paavilainen – Wireless press (2002)

Wireless J2ME Platform Programming – V. Piroumian – Sun Microsystems (2002) <sup>1</sup>

# Topics

- ◆ Electronic and Mobile Business & Commerce
- ◆ Opportunities and Constraints
- ◆ Applications for Mobile Systems
- ◆ How Mobile Systems Work (Present & Future)
- ◆ Introduction to enabling technologies (specifically Java Technology)
- ◆ Mobile Applications:
  - ◆ Games
  - ◆ Wireless Organisational and Operational Functions

# Why Mobile Systems

- ◆ Changes in the Dynamics of Business Operations
- ◆ Advancement in Information and Communication Technologies
- ◆ Natural continuation of Electronic Business
- ◆ Global reach

# Mobile Business

Mobile Business is the facilitation of Business Operations such as:

- Marketing
- Sales
- Provision of Information & Services
- Organisational Processes and Procedures
- Exchange of goods (services & products)
- Transaction of Money – m-Commerce

Using wireless and mobile devices i.e. mobile phones, PDAs, pagers, TV Boxes etc.



# Mobility and Internet Access

- ◆ The original Mobile Devices and Communication was designed for voice applications (2G)
- ◆ Internet access via WAP and GSM – Costly
- ◆ GPRS and 3G and beyond making Internet access cost effective
- ◆ Combination of Mobility and Internet Access causes explosion of applications at present and future
- ◆ Games, Multimedia and VOIP

# Mobile Technology

## ◆ Advanced Mobile Phone Systems (AMPS)

- Analogue Cellular network system
- 1G technology – first mobile phone
- Limits and was replaced by digital system

## ◆ 2G

- Digital
- Compressible – Higher Transmission rate
- Encrypted and decrypted
- Diagnostic and error recovery can be applied
- Segmentation of data made possible e.g. voice, fax, etc.

# Mobile Technology Cont.

## ◆ GSM

- European Standard introduced early 90s
- Develop a standard way of communication
- Adopted more than 70% in the world
- Springboard for 2.5 (GPRS) and 3G
- Digital voice transmission
- Global roaming
- Subscriber Identity Module (SIM) authentication
- High security in wireless links
- Interoperation with ISDN
- SMS

# Mobile Technology Cont.

## ◆ 3G

- Higher data transfer rate compared to 2G
- Internet enabled mobile systems
- Global roaming
- Personalised handheld devices
- Introduction of General Packet Radio Services (GPRS) via 2.5G
- Introduction of Enhanced Data Rates for Global Evolution (EDGE)
- Introduction of WCDMA/UMTS making m-Commerce a reality



# Mobile-Commerce opportunities and limitations

Mobile Commerce is the transaction of funds and services via a handheld device using telecommunication medium

# M-Commerce Opportunities

- ◆ Changes in the dynamics of Global Business
- ◆ Elimination of PC and constraints imposed by wired Internet use
- ◆ On-fly access anytime and anywhere
- ◆ Access to banking, trading, financial, entertainment, etc.
- ◆ Cheaper device, easy-to-use, plug & play and global growth
- ◆ Interoperability
- ◆ Creation of Solid business models through partnerships

# M-Commerce Limitations

- ◆ Processing capabilities
- ◆ Power capacity
- ◆ Display limitations
- ◆ Intermittent network

# Introduction to Mobile Applications for Business

- ◆ **Electronic and Mobile Shopping:** Using Mobile devices to browse and purchase products
- ◆ **Electronic and Mobile Auctions:** Facilitation of bidding and purchase of products
- ◆ **Electronic and Mobile Value Chain Integrators:** Provision of services and products through a value-adding chain
- ◆ **Electronic and Mobile Content Provider:** Provision of information and content for users
- ◆ **Electronic and Mobile Financial Services:** Provides financial services for users
- ◆ **Electronic and Mobile Entertainment:** Provision of games, music, ring tones and other applications