Evolution of Telecoms and Some Impacts on Urban Life

MIT New Century Cities Symposium
January 18-19 2005
Cambridge
How is the telecoms market evolving?

The Physical Perspective

Communicate at a Distance  From Anywhere  From any network, to any Device
How is the telecoms market evolving?

The User Perspective

Phone as Furniture  As a Fashion Accessory  As a Lifestyle
How is the telecoms market evolving?

The Perceptual Space

Shared sound
Shared Sound, Text & Pictures
Shared (Virtual) Presence
Reality Check…
Basic consumer needs

78% of users bought their phone for other reasons than “mobile Internet” usage and discovered it later

Mobility World Survey
3G usage three months after launch

Source: Mobilkom, Austria
Our Role in the Handset Industry

Ericsson Mobile Platforms

Core technology

Provides core handset technology to mobile phone manufacturers in line with the consumer market trends and Operator’s and Service Providers’ needs and plans.

Sony Ericsson

Complete handsets

Provides complete handsets for richer consumer experience supporting operators and service providers business objectives.

Interoperability with networks

Multimedia integration
WCDMA Terminal Availability - Announced

<table>
<thead>
<tr>
<th>Q303</th>
<th>Q403</th>
<th>Q104</th>
<th>Q204</th>
<th>Q304</th>
<th>Q404</th>
<th>Q105</th>
<th>Q205</th>
</tr>
</thead>
</table>

**Sony Ericsson**
- Wakaba
- Z1010
- V800

**Motorola**
- A830
- A920
- A835
- A925
- V980
- V975
- C980
- C975
- E1000
- A1000
- Z100V
- Z107V

**Nokia**
- 6650
- 7600
- 6630

**NEC**
- e506
- e808
- e808Y
- e616
- e313
- e228
- e338
- 802N

**Siemens**
- U10
- U15
- U8100
- U8110
- U8120
- U8150
- U8130
- U8138

**LG**
- U8100
- U8110
- U8120
- U8150
- U8130
- U8138

**Samsung**
- SGH-Z100
- SGH-Z105
- Z107V
- Z110V

**Sharp**
- V801SH
- V-801SA
- 802
- 902

**Sanyo**
- V-SA701
- V-801SA
- Z800

**Panasonic**
- 802
- 902
WCDMA / EDGE and HSDPA

- **WCDMA / EDGE**
  - First WCDMA / EDGE handset available - Nokia 6630.
  - 3 – 4 additional suppliers with handsets by end of 2005.

- **HSDPA**
  - First HSDPA devices will be PC Cards with handsets following 1 quarter later.
  - First commercial HSDPA devices will most likely be available in Japan in Q4 2005.
  - First HSDPA handsets available outside of Japan expected in Q1/06.
  - Cingular driving HSDPA push in NA in order to compete with CDMA EvDo. Cingular has not yet announced which handset vendors will supply UMTS/HSDPA handsets.
Device Trends

Better Displays
- higher resolution
- more pixels
- brighter …

Enhanced Sound
- 3D, polyphonic

More Personalization
- features, color
- shape, skins, …

More Applications
- Sharing, Collaboration
- team, chat, …enterprise

More Multimedia Support
- 3D acceleration, video, …

Better Cameras
- higher resolution
- snapshot/ video mode
- zoom

More Security
- DRM
- Privacy, SSO

More Openness
- Java, …
- Device management

More Storage
- Gigabytes
- memory cards
- short vs. long-term memory

More CPU Performance
- Moore’s law
- 2x power / 18 months

More Communications
- More bandwidth
- New link types (,USB, WiFi …)
- Adhoc/PAN support

Reduced Power Consumption
- New display technologies
- OS enhancements,
- MRAM technologies …

Improved Network Support Services
- Backup, Sync, …
- Tighter Integration with “fixed” services

More …
- speech recognition
- positioning …
WCDMA Terminal Trends

- Focus on improved displays
- Mega pixels cameras and flashes
- Improved frame rate performance (fps)
- Improved battery life
- Positioning
- Smaller and lighter terminals

Sony Ericsson V800

- Networks: GSM 1900, GSM 1800, UMTS, GSM 900
- Weight: 128 g
- MMS Video, EMS (Enhanced Messaging)
- Dual LCD
- Video call
- Screensaver
- Viewfinder display

- 1.3 megapixel camera
- 176x220 pixel Color LCD 262K
- MP3 Audio Music player, online and downloaded
- MPEG4 Video player, Video Clip
- 3D Games, online and downloaded
- Java™
- Sound: 72 voices
- 7MB memory
Examples of “3G” services LIVE in Japan

- Japan launched their first “3G” services in Oct 2001.
- Many small steps towards multimedia future

**Inbuilt analogue TV** already here, take off expected when digital terrestrial TV broadcast is introduced.

40% of Japanese subscribers rated this as their **prime factor** of selection.

Broadcasted Entertainment stimulates interactive sessions over cellular networks
EZ Channel: downloading of streamed entertainment, during the night, which can be “consumed” during the next day.

January 2004
• Able to register 3 contents
• Daily or Weekly subscriptions
• Automatically downloaded nights
• Content size: max. 3MB
• offered as EZ flat service rate
• Based on SMIL (Synchronized Multimedia Integration Language).

User Services LIVE in Japan

**Easy Navigation**
GPS maps presented in the display featuring zoomed map that follows your moves and presents voice guidance

**Felica**
e-commerce platform, including payment models.
Used by 10 million commuters every day

**Finger print readers**
Authentication for financial transactions, cooperation with banks

**BarCode readers**
Samples all your business cards information in the handset
Reflections for 2005

Content-to-person communication

Content 2 Person will have a steeper uptake on subscriber usage than Person to Person (P2P).

“Bucket fee” will be the Key to drive usage

Person-to-person communication

P2P will grow in the long run. E-mail probably dominate in US and Asia and SMS/MMS in EU region.

New P2P communication through Push to Talk entering the market and Combinational services down the road
Application areas

- **Mobile@home**
- **IPTV**
  - Broadcast TV
  - MMS on TV, e-mail, SMS, chat/IM on TV
  - Interactive TV, “televoting”
  - Video on demand
  - Network personal video
- **Interactive gaming**
- **E-commerce**
  - Payment by the Phone
  - Demo of products
- **Storage, Personal/Family Application**
  - Peering between homes, family communities
- **Alarms, security**
- **Home network administration**
IPTV

New TV paradigm in the home: TV is personalized and “PC-ized”

– Media server and multiple screens

1. Electronic programming guide, search engines for programming, TV-guide

2. Broadcast TV – Personal, interactive, real time TV
   – Free and pay-TV
     ▪ New, cost-efficient, distribution channel for content owners
     ▪ Reach new customer categories
     ▪ Tripple play, bundle offerings, to retain customer base
     ▪ Pay-TV the fundamental revenue generation (subscription + pay per view (SIM))
   – Interactivity
     ▪ To ensure viewers for commercials
     ▪ Tele-voting, "log on to TV" (upside towards telephone?)
     ▪ TV-shop, payment identity by SIM?
     ▪ Interactive advertising and information – linked to e-commerce
   – Selective advertising
     ▪ Mobiles as push device

3. Networked Time Shift TV – Networked personal video recording
   – Networked PVR
   – Time shift, get a program via an URL when I want to watch it.
   – Staged release of premium content at different prices (micropayment system)

4. Video on demand, especially nitched subjects, alternative to video rental business
   – Personal library of content, privileges for access
   – Not only video but also gaming
   – Related to personal video and digital photo archive
Telecoms in the Near Future

1) Always Connected
2) Virtual Presence
3) Digital Identity
4) Extended Communities
5) Digital Agents
Telecoms in the Near Future

1) **Always Connected:**
   “Wherever I go, there I am”

2) **Virtual Presence**

3) **Digital Identity**

4) **Extended Communities**

5) **Digital Agents**
Telecoms in the Near Future

1) Always Connected
2) Virtual Presence:
   “How I learned to stop worrying and love overlays”
3) Digital Identity
4) Extended Communities
5) Digital Agents
Telecoms in the Near Future

1) Always Connected
2) Virtual Presence
3) Digital Identity:
   “I link therefore I am”
4) Extended Communities
5) Digital Agents
Telecoms in the Near Future

1) Always Connected
2) Virtual Presence
3) Digital Identity
4) Extended Communities: “How to Win Friends and Influence People… Even if You’ve Never Met”
5) Digital Agents
Telecoms in the Near Future

1) Always Connected
2) Virtual Presence
3) Digital Identity
4) Extended Communities
5) Digital Agents:
   “Have your avatars talk to my avatars”
Always Connected

“Wherever I go, well, there I am”

Truth: I Want Access

To Me

voice, text, image, real-time or deferred

To My Stuff

services, address book, mail, calendar, images, music, documents, my house

To My Friends’ Stuff

shared information, chat rooms, community services

To my Office Stuff

enterprise/business services, mail, directories, documents

No matter where I am, to which network I am connected, and which terminal device I am using
Always Connected

Consequences:

Access defines place
- the home will be always best connected: wireless, BB, WLAN
  - access to house from outside (info, controls, sensors)
- content purchase/rentals on-line: music, movies, TV
- network Access and Interoperability becomes a must
  - the all-connecting, omnifunctional Swiss-army personal device
  - converged networks?
  - avoidance of access “holes”
  - regulation?

Changed traffic patterns
- most transactions will occur online, and at any time
- people go places to see/touch/feel
- reduction in dedicated office spaces downtown
- increased space for offices in homes
This just in…

Messenger taps social nets

July 14/21, 2004 By Kimberly Patch,
Technology Research News

Researchers from the University of Michigan developed the Small-World Instant Messaging system (SWIM), which extends instant messaging systems by identifying communities and expertise and routing queries accordingly…

Full Story At:
Virtual Presence

“How I learned to stop worrying and love overlays”

Truth:

– I want to share the experience of my friends and colleagues
– I want the right information presented to me when I need it, wherever I go
– I want to be able to be “where” I am needed instantly, and interact with the people and things “over there”
Virtual Presence

Consequences:

Mapping of the information space over the physical space

- phone numbers, addresses, mailboxes, home pages,
- location and context sensitive help, directions,
- locations of others and community members,
- shared presentation of information over “virtual white boards”
- apply expertise to where it is needed instantly…
This just in…

Japan pins tourism hopes on PDA
JAPAN will start lending to foreign visitors personal digital assistants (PDAs) with travel information and translation services as part of a tourism promotion scheme…

Full Story At:
This just in…

Ambulances May Get Virtual Doctors
By Charles Sheehan, AP Writer, December 30, 2004

PITTSBURGH (AP) Researchers are developing technology for ambulances to improve communications and perhaps more importantly, place virtual doctors inside in transit…

Full Story at:
http://www.eeweek.com/article2/0,1759,1746729,00.asp
Digital Identity

“I link therefore I am”

Truth:

– I am having a hard time to remember all my access names and passwords
– Why can’t I have ONE piece of plastic for all my IDs, credit cards, debit cards?
– Who can I trust to handle my money?
– I hate dealing with cash
– Just deliver it to my house at…
Digital Identity

Consequences:

- Single Sign-On
- Federated Identity
- More E-commerce and more Digital Rights Mgmt
  - Less bricks-and-mortar
  - More inter-state and international trade
  - Greater reliance on delivery/mail/couriers
  - Increase reliance on storage and delivery services
- More M-commerce and automated payment, even in the store
Where have all the parking meters gone?

Pay for parking via cell phone

By: Jack Nerad for Driving Today, 2004-08-28

People continue to complain about phone use in the car, but now you can actually park by phone as well. The company that makes and sells the dreaded Denver Boot that terrorizes scofflaws has a new way to help you avoid getting one affixed to your car--a system that lets you pay for parking at meters and lots by using your cell phone.

Full Story at:
http://www.drivers.com/article/710/
Extended Communities

“How to Win Friends and Influence People… Even if You’ve Never Met”

Truth:

– Give me services that I want
– I have a family life, a work life, and a social life
  ▪ I want a single bill for the whole family
  ▪ I don’t want to have to change phones after work
  ▪ I enjoy interacting with people who share my interests
Extended Communities

Consequences:

- Communities within communities
- Virtual communities become increasingly important
- Same tools for family life, work life, and social life
  - Support of multiple communities to a single identity
  - Time/place/context sensitive services
  - Long distance communities become more common
This just in…

Internet use cutting into TV viewing and socializing


The average Internet user in the United States spends three hours a day online, with much of that time devoted to work and more than half of it to communications, according to a survey conducted by a group of political scientists...

... Over all, 57 percent of Internet use was devoted to communications like e-mail, instant messaging and chat rooms, and 43 percent for other activities including Web browsing, shopping and game playing. Users reported that they spent 8.7 percent of their Internet time playing online games...

Full story at:
http://news.com.com/Internet+use+cutting+into+TV+viewing+and+socializing/2100-1026_3-5507547.html
Digital Agents

“Have your avatars talk to my avatars”

Truth:

– It’s getting tough to keep up with e-mail
– Too much information, and it’s changing all the time
– If only I had a receptionist to filter some of these calls…
– My friends never leave a message
– I hate automated menus
Digital Agents

Consequences:

– Unified messaging with intelligent filtering
– Increasingly sophisticated Web crawlers
– Presence and availability enhanced virtual assistants
– Automated avatars with some “legal” and financial responsibility for transactions
– Less reliance on human intervention for CRM
– More machine-machine interactions
This just in…

Kodak camera includes Wi-Fi access, T-Mobile subscriptions
RCR Wireless News, Jan 6, 2005
LAS VEGAS-Kodak announced a new digital camera with Wi-Fi capability for e-mailing and viewing pictures. Kodak said the EasyShare-One camera will also have integrated access to T-Mobile USA Inc.'s HotSpot service, available at more than 5,000 locations across the United States.

Full story at: