

Mobile Television - project summary

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<http://www.vtt.fi/tte/mobtv/>



Topics

- **Why mobile TV ?**
- **How does it work ?**
- **How will people use it ?**
- **Are people ready to pay ?**

Why mobile television ?

- **Watching TV independently of location (*TV-Anywhere*)**
 - Transportation vehicles (train, bus, boat, car....)
 - Public places (cafeteria, railway station, waiting spaces...)
 - Private spaces (home, summer house...)
- **Watching TV independently of time (*TV-Anytime*)**
- **Emerging technology is enabling mobile use:**
 - **Terminals: mobile phone, PDA , tablet-PC,...**
 - **Digital television network (DVB-T) has high capacity and is able to transmit to mobile terminals, if equipped with correct parameters.**
 - **New TV standard for mobile reception (DVB-H)**
 - **Internet Protocols can be used in broadcasts (IP-datacast)**
 - **TV (1->N) , cellular (1<->1) and WLAN (1<->1) are starting to interwork (-> 4G)**



Who benefits ?

- **End user**
 - Gets a richer media experience and new services
 - Gets an integrated content package (text,video)
- **Media house**
 - Reaches a wider audience
 - Possibility for new content formats
 - New revenue sources
- **Network operator**
 - Reaches many users with one single broadcast (datacast)
- **Component-, terminal and software producer**
 - New products



Our project: The whole value chain participated

- **Media houses**
 - Alma Media
 - SanomaWSOY
- **Network operators**
 - Digita (TV-network)
 - TeliaSonera (tele)
 - Elisa (tele)
- **Software producer**
 - Malibu Telecom (tele)
- **Terminal manufacturer**
 - Nokia



VTT IT



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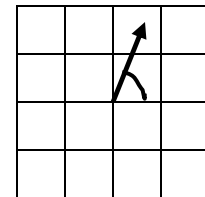


Topics

- Why mobile TV ?
- **How does it work ?**

How to implement mobile television

- **Digi-TV reception difficult from the terrestrial DVB-T network indoors with a small antenna and in motion (>40 km/h)**
 - Reason: The "accurate" modulation of the TV signal (64-QAM) and big number of carrier frequencies (8 K)
- **Solution 1: A separate mobile broadcast network (multiplex, e.g. 11 Mbit/s)**
 - Delivery of TV straight to the mobile device (e.g. 45 channels at 250 kbit/s)
 - Uses "rough" modulation (e.g. 16-QAM or QPSK), less carrier frequencies (2K) and power saving terminal solutions(DVB-H)
 - In Finland, commercial DVB-H broadcasts to mobiles planned for 2005
- **Solution 2 : Delivery through wired Internet (WLAN-hotspots= last mile) or 3G/GPRS cellular network**
 - The TV-signal is received outdoors with appropriate antenna, transcoded and streamed
 - Problem: how to serve millions of users wanting the same program
 - Was used as intermediary solution in our Mobile TV project

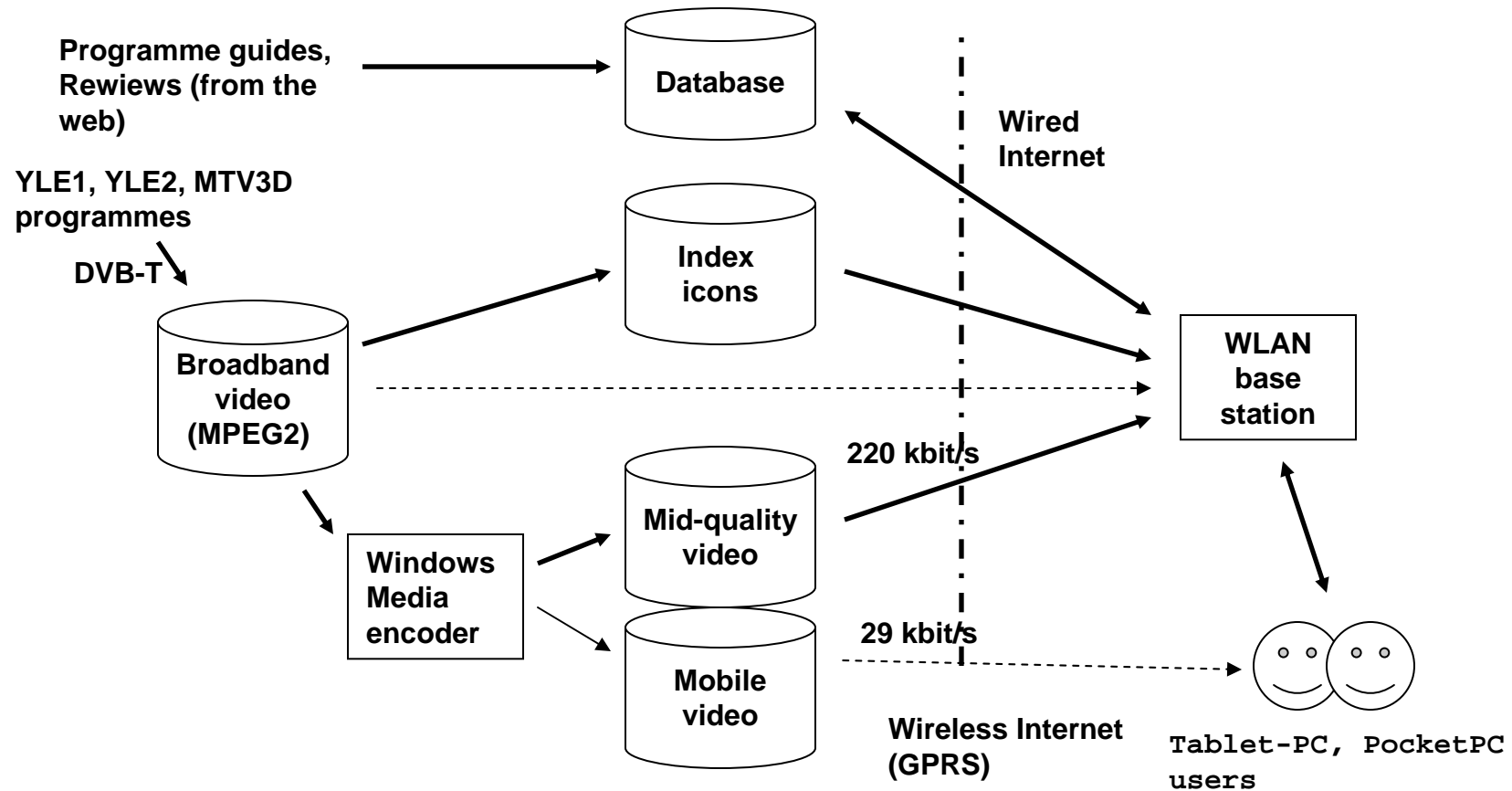


Our Mobile -TV project

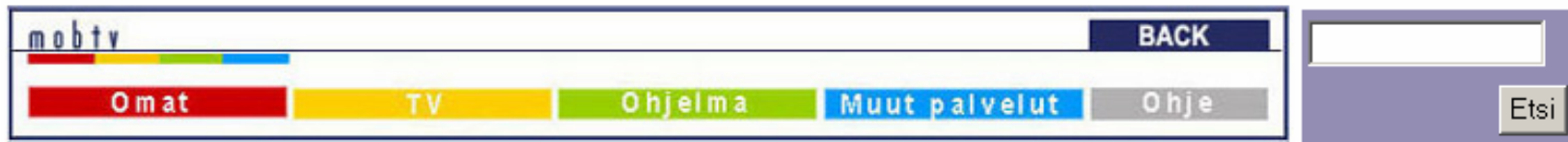
- Goal: Research, develop and test applications of mobile television
- In the user trial we studied which *terminal*, *content* and *service* were suited to various user *situations*
- Large interviews (users, experts): >200 persons
- The user *trial* was made with two terminals
 - A5-sized pen tablet ("cafereria-TV")
 - Pocket sized PDA (pocket-TV")
- Digi-tv programs from one week were available (TV-Anytime) as well as program information from Internet
- User trial 4.10. 2002 - 15.2.2003 with 81 users at WLAN hotspots
 - City center, cafeteria
 - Work place, home



Data flow in the trial



The programs were either accessed through categories...



Omat

[Suosikit](#)

[Ajankohtaiset](#)

[Asia ja kulttuuri](#)

[Elokuvat](#)

[Kotimainen fiktio](#)

[Lapsille](#)

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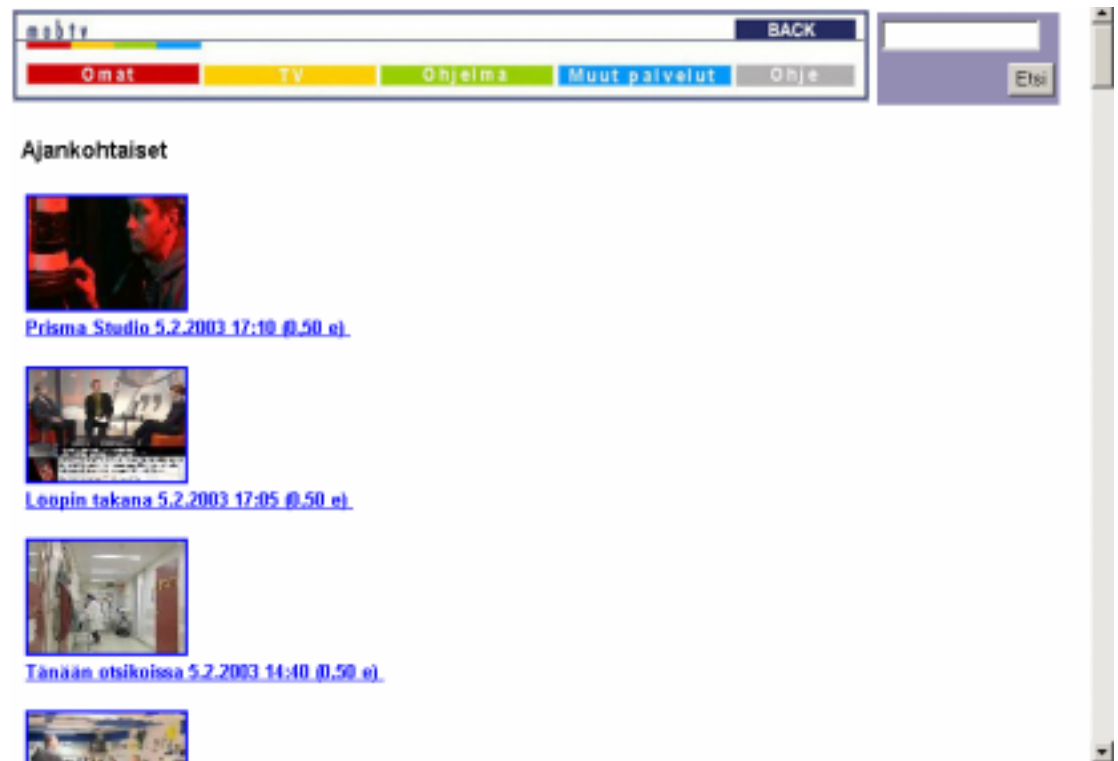
[Urheilu](#)

[Uutiset](#)

[Viihde](#)

[Lopeta](#)

Programs in the "News" category



... or through TV channels



[5.2.2003](#)

[4.2.2003](#)

[3.2.2003](#)

[2.2.2003](#)

[1.2.2003](#)

[31.1.2003](#)

[30.1.2003](#)

Programs of a certain day on a certain channel

The screenshot shows a mobile TV interface with a navigation bar at the top. The navigation bar includes the text 'mobtv', a 'BACK' button, and a search input field with an 'Etsi' button. Below the navigation bar are five menu items: 'Omat' (red), 'TV' (yellow), 'Ohjelma' (green), 'Muut palvelut' (blue), and 'Ohje' (grey). The main content area displays the channel 'YLE TV 1' and the date '2.2.2003'. Below this, there are four program listings, each with a small thumbnail image and a text description:

- [Euronews 2.2.2003 23:40 \(0,50 e\)](#)
- [Salama veden yllä 2.2.2003 22:10 \(1,00 e\)](#)
- [Ykkösdokumentti: Pako ja paluu 2.2.2003 21:15 \(0,40 e\)](#)
-

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- Why mobile TV ?
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- **How will people use it ?**

Mobile television is television - not wireless multimedia

- The users wanted the same programs in the mobile as on the normal TV
- So, even if all programs would not suit the pocket terminal
- Programs were accessed through known "brand" channels (tv1, tv2, mtv3)
- A possible concept: A summary or trailer on the mobile/remote, the full program on the big TV

TV-on-demand (TV-Anytime)

- Most appreciated feature
- Important to be able to watch the program at the time it suits you
- Check programs that you did not watch on normal TV
- Surfing TV programs like you surf TV channels today



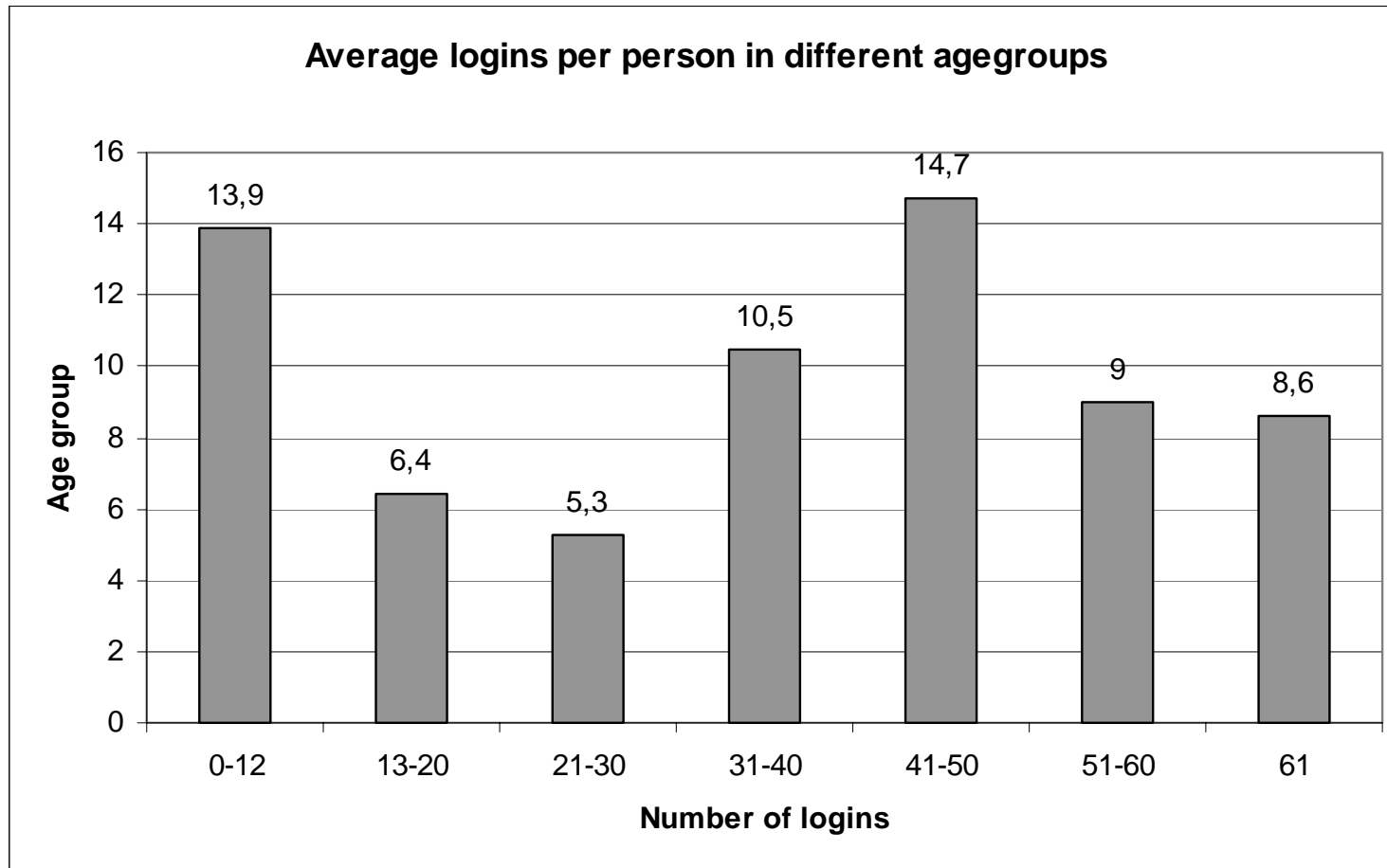
Antti Tammela Caj Södergård, 22.1.2004

Terminal size

- “Pocket TV ” (iPaq, Jornada PDA`s) is small enough to bring with you
- “Pocket TV” was experienced to be a personal device, which you watch alone
- However, young people wanted to watch mobile TV together with their friends
- “Cafeteria TV” (tablet) PC) would be used at home, in the car and e.g. in the summer house
- Do we need more sizes ? Phone TV, Pocket TV, Friend TV, Cafeteria TV



Age

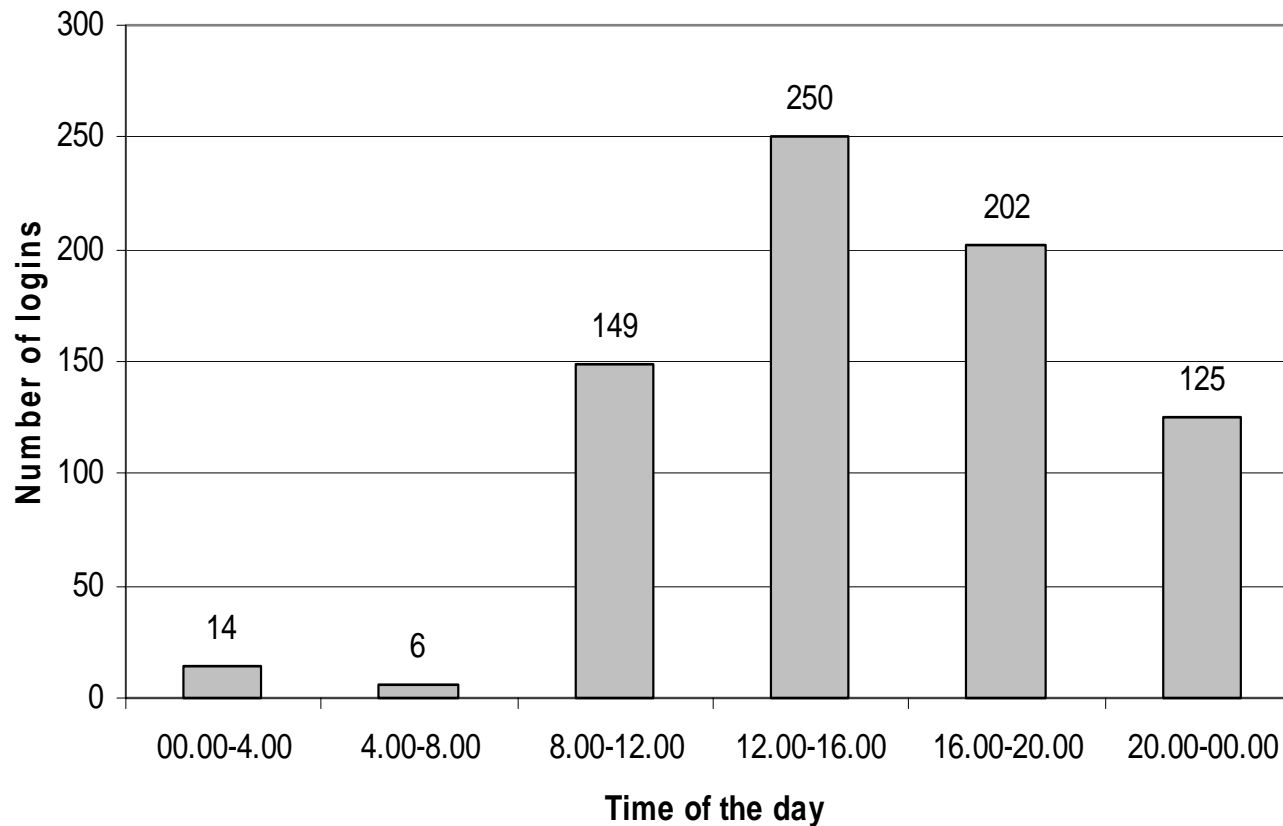


Sari Lehtola

Caj Södergård, 22.1.2004

Time

Logins by time of the day



Mobile TV was watched at noon, when returning from work and in early evening.

Men watched more in the morning, families in the evenings

Most watched programs

TV-News

Pikku Kakkonen (Children's program)

School-tv

Arttu

Itsevaltiaat (Comics)

Huomenta Suomi (Morning Talkshow)

Richard Scarryn touhukas maailma (Children)

Ihana Aamu (Morning Talkshow)

Sätkyjä ja tärinöitä

Angela Anakonda (Children's program)

Kova laki (Adventure)

Muumilaakson tarinoita (Children's program)

Kuningaskuluttaja (Information)

Vaaleanpunainen pantteri (Children)

Franklin

Joka kodin asuntomarkkinat (Info)

Inhimillinen tekijä (Culture)

Kotikatu (Drama)

Tilt.tv

Ykkösen aamu-tv (Morning)

Joulukalenteri

Tulosruutu (Sports)

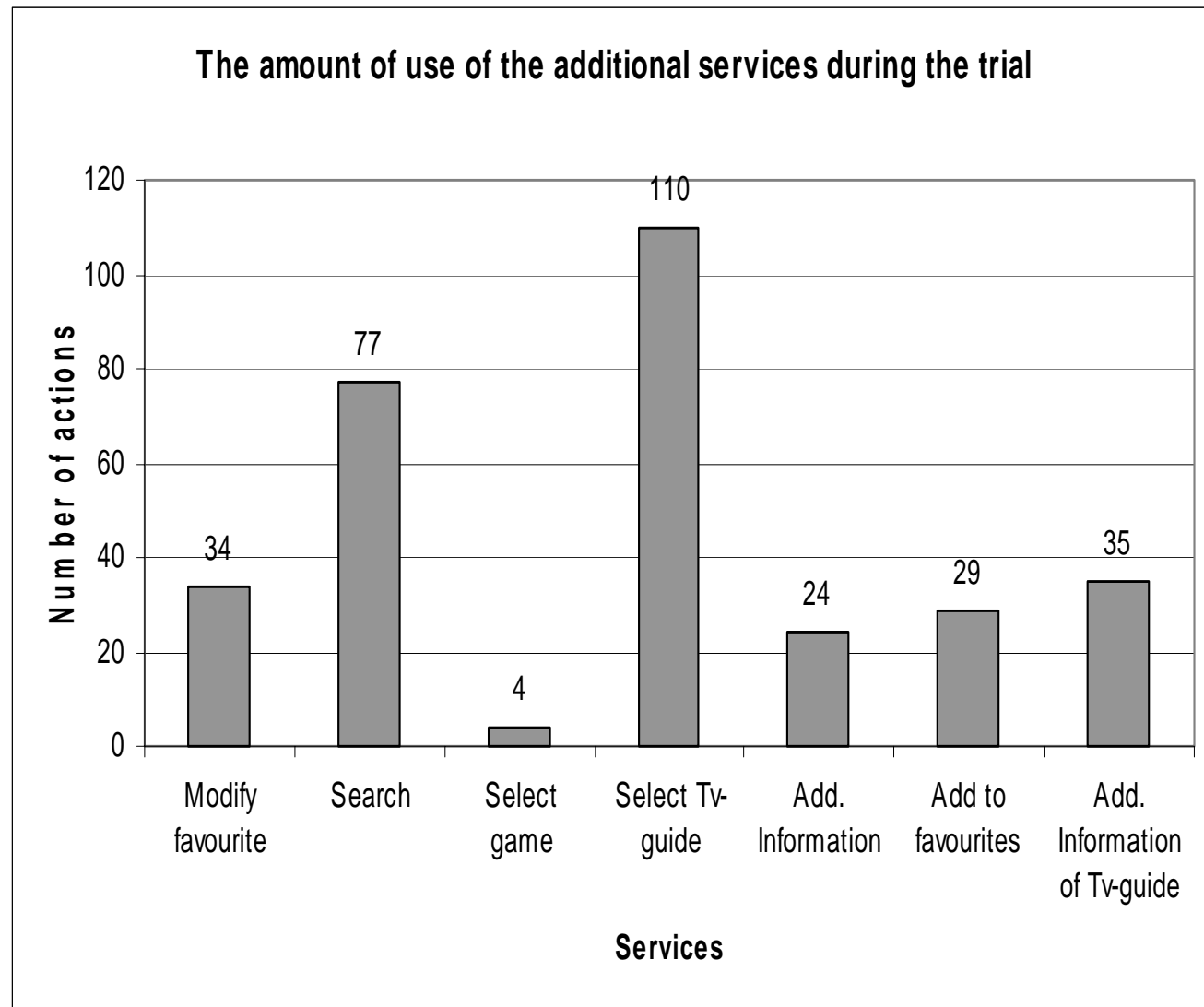


Sari Lehtola

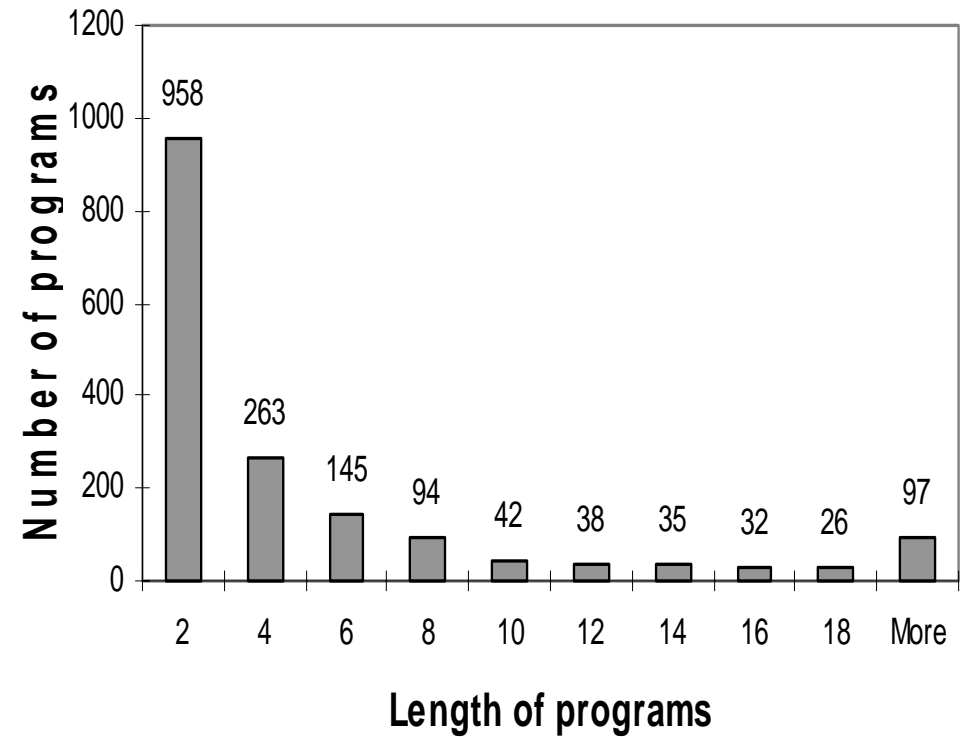
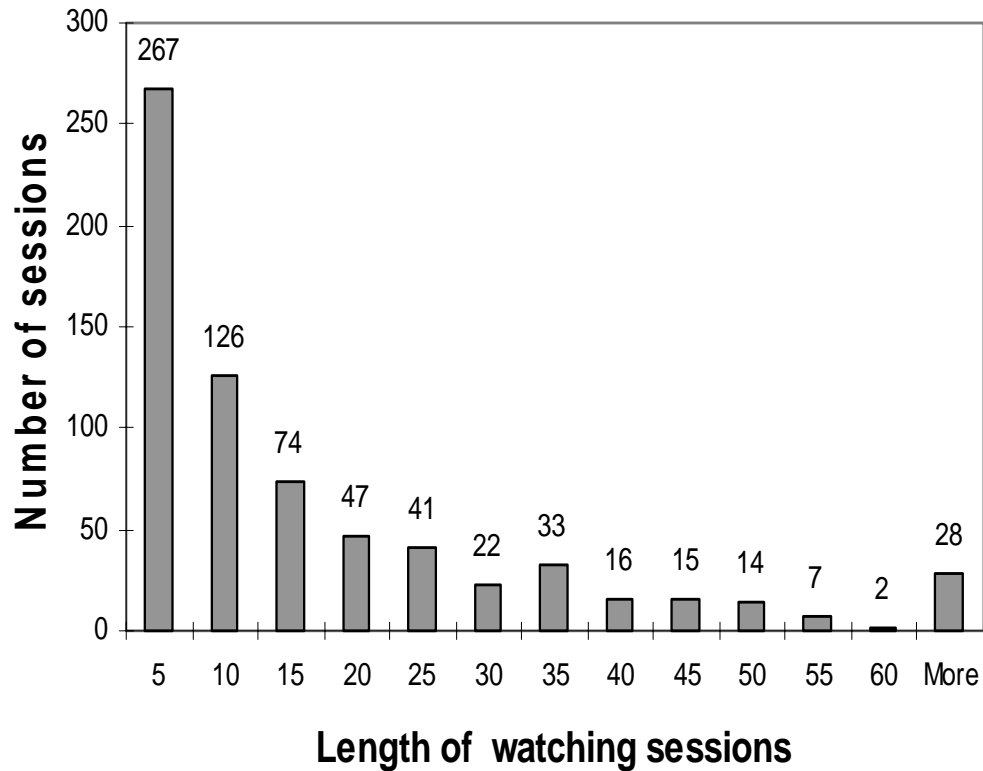
Caj Södergård, 22.1.2004

Additional services

- TV programs most important - additional services unclear to many
- TV Guide was most used
- Game interested children - not adults



Surfing



- Only short parts of programs were watched



Usage situations

- Mobile TV, when waiting for something
- When you want to stay up-dated
- When you are alone and want to have something to do
- When you want relax



Where to find time for mobile watching?

- From the mobile phone
- From the evening newspaper or weekly magazine

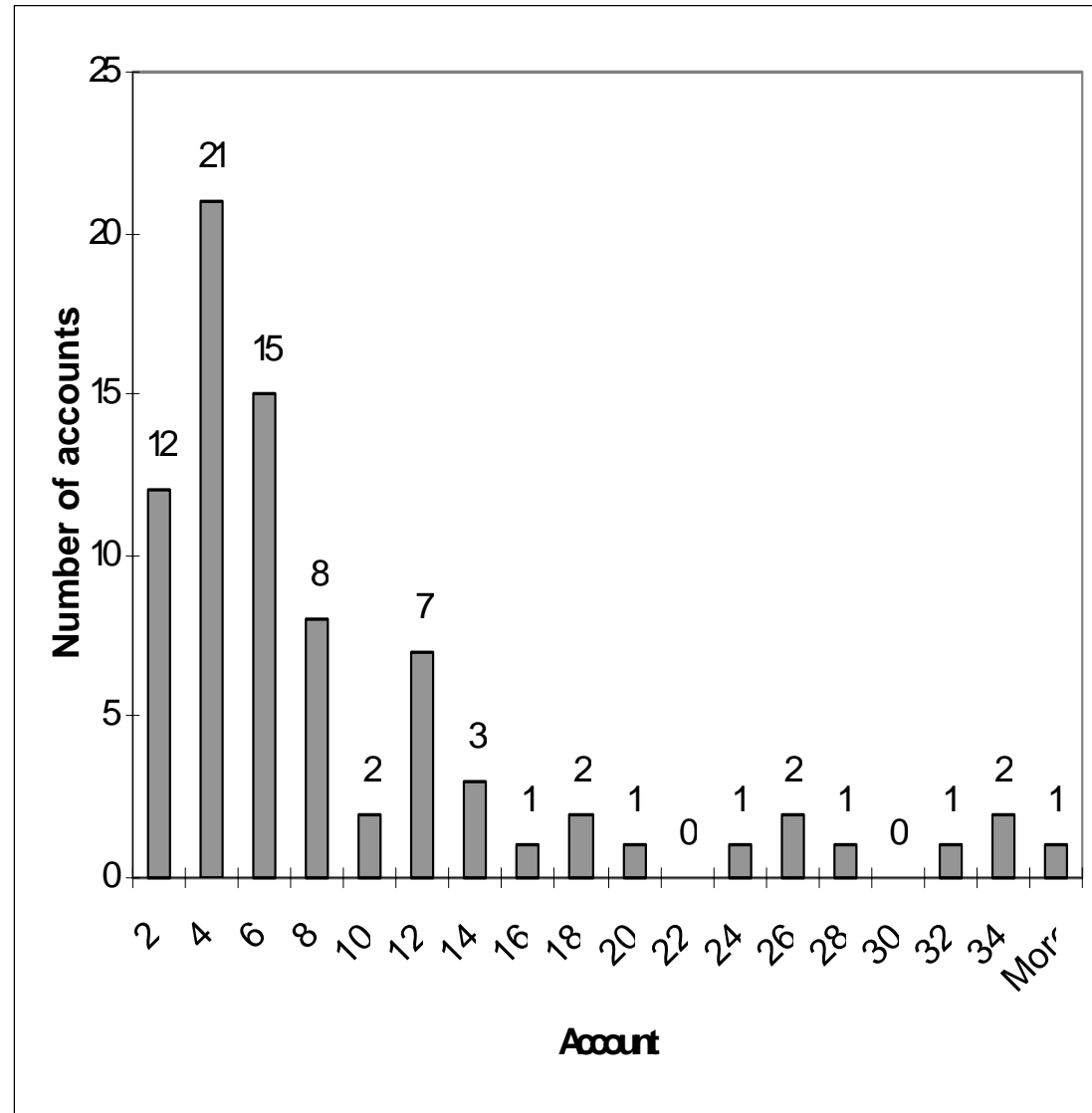


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Paying

- Half wanted to pay a monthly fee, half per program
- Monthly fee: 15 - 20 €
- Price per program: 50 cent
- Price was compared to mobile phone and Internet costs



Summary : Trial experiences

- People were enthusiastic
- Mobile television is television - not a "wireless Internet terminal" (the same TV-programs should be available as on "normal TV")
- Watch television according to your own time table (TV-Anytime)
- Mobile television was used like an evening newspaper (time killing, fighting loneliness, up-dates, browsing the content)
- Children liked the service a lot, adults liked news
- Various televisions for various needs: Phone TV - Pocket TV (PDA-size) - Friend TV - Cafeteria TV (Tablet PC size)
- People are ready to pay for mobile television (about 15 - 20 €/month or 50 cents/program)



Caj Södergård, 22.1.2004

More information

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