Mobile Handset Population in Finland 2005-2008

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• Summary
Data collection

- Data collected using mobile operators’ reporting systems in 2005-2008
  - Ticket (CDR) and subscriber information systems of Finnish GSM/UMTS operators
  - Data primarily from 2 weeks or 1 month in Sep – Oct, 2005–2008

- About 80-99% of Finnish mobile terminals included
  - Participating operators: TeliaSonera, Elisa, DNA
    - 2005-2007: Sonera, Elisa (+Kolumbus), DNA
    - 2008: Sonera (+TeleFinland), Elisa (+Saunalahti+Kolumbus), DNA
  - Very comprehensive sample of about 4 – 6 millions
    - Survey studies with similar results commonly with max $10^3$ respondents

- Data includes all mobile terminals observed at the network during the observation period
  - Terminals of both postpaid and prepaid subscribers
  - Mobile handsets and data terminals, limited data on other terminal types
  - Some error due to mobile subscriber churn during the observation period, and differences in operator-specific data sets
  - Some error due to unidentified terminals, and missing feature-data of handset models
  - No data on Apple iPhone obtained from the exclusive distributor Sonera
Mobile handsets and data terminals

<table>
<thead>
<tr>
<th>Terminal type</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile handsets</td>
<td>99.4%</td>
<td>98.7%</td>
<td>98.2%</td>
<td>95.1%</td>
</tr>
<tr>
<td>Data terminals (data cards, USB modems,</td>
<td>0.6%</td>
<td>1.3%</td>
<td>1.8%</td>
<td>4.9%</td>
</tr>
<tr>
<td>embedded data modules)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Share of data terminals growing, particularly since fall 2007
  - Consistent with the growth of mobile broadband subscriptions observed by FICORA

- Other remarks
  - Number of mobile subscriptions in Finland grown by almost 1 million between measurements in 2005 and 2008
  - Other device types (e.g. payment terminals, desktop phones) excluded due to incomplete data
Top mobile handset models in Finland

Top 15 handset models in Finland (2008)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Model name</th>
<th>Share of all handsets</th>
<th>Number of handsets*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nokia 1100 / 1108</td>
<td>5.1%</td>
<td>295100</td>
</tr>
<tr>
<td>2</td>
<td>Nokia 3310</td>
<td>3.6%</td>
<td>205100</td>
</tr>
<tr>
<td>3</td>
<td>Nokia 1600</td>
<td>3.2%</td>
<td>185200</td>
</tr>
<tr>
<td>4</td>
<td>Nokia 2760</td>
<td>2.9%</td>
<td>168300</td>
</tr>
<tr>
<td>5</td>
<td>Nokia 2610</td>
<td>2.9%</td>
<td>168200</td>
</tr>
<tr>
<td>6</td>
<td>Nokia 2310</td>
<td>2.4%</td>
<td>139200</td>
</tr>
<tr>
<td>7</td>
<td>Nokia 6060</td>
<td>2.4%</td>
<td>138400</td>
</tr>
<tr>
<td>8</td>
<td>Nokia 3510i / 3530</td>
<td>2.2%</td>
<td>125000</td>
</tr>
<tr>
<td>9</td>
<td>Nokia N73</td>
<td>2.2%</td>
<td>124400</td>
</tr>
<tr>
<td>10</td>
<td>Nokia E90 Communicator</td>
<td>1.8%</td>
<td>104900</td>
</tr>
<tr>
<td>11</td>
<td>Nokia 6151</td>
<td>1.8%</td>
<td>103300</td>
</tr>
<tr>
<td>12</td>
<td>Nokia 6131</td>
<td>1.7%</td>
<td>100500</td>
</tr>
<tr>
<td>13</td>
<td>Nokia N95</td>
<td>1.7%</td>
<td>100500</td>
</tr>
<tr>
<td>14</td>
<td>Nokia 3110 Classic</td>
<td>1.7%</td>
<td>99500</td>
</tr>
<tr>
<td>15</td>
<td>Nokia N70</td>
<td>1.7%</td>
<td>98800</td>
</tr>
</tbody>
</table>

* Based on estimated number of 5 750 000 handsets

- Top 3 – basic telephones
  - GSM-only, basic phone OS, no packet data capabilities
- Top 10 – mostly 2G devices
  - 3G among top 15: Nokia N73, E90, 6151, N96, N70
- Handset population not as primitive as top list suggests!
  - Low-end covered with smaller number of models, i.e. high-end more fragmented
  - In low-end, units per model 2x as high as in high-end
  - → other metrics needed
Concentration of mobile handset population

- Fragmentation of handset population increasing
  - Top 50 in 2008: 70%
    - 2007: 75%
    - 2006: 83%
    - 2005: 88%
  - Broader handset offering? More models available?
  - Growing popularity of high-end handsets?
  - Less “hit” models?

- Large number of different handset models, with marginal shares
  - Over 1000 different handset models identified
Penetration of handset features I

- Features offering higher data transmission speeds spreading
  - EDGE 44% → 54%
  - WCDMA 18% → 25%
  - HSDPA 2% → 7%
  - WLAN 6% → 10%

- Especially 3G (WCDMA), due to handset bundling
  - Very steep S curve, growth comparable to more mature features

N = 4 - 5.75 millions
Penetration of handset features II

- Many features nearing saturation with 70-80% penetration
  - Color display, packet data, WAP browser, Java, …
- But… feature penetration is not adoption
  - E.g. email and MMS not adopted by over 60% of users
Mobile handsets by manufacturer

- Nokia’s 90% market share remarkable
  - First non-Nokia handset ranked 67th!

- Share of Samsung and Sony/Ericsson still growing
  - BenQ/Siemens and Motorola decreasing

- Remark on "market share"
  - Share of handset population not same as share of unit sales
  - But... handset retail data (collected by GfK) gives similar results

N = 4 - 5.75 millions
Mobile handsets by OS and software platform

- 47% of Finnish handsets running Nokia S40
  - Substitutes basic Nokia OS
  - Newer versions (3.-5. ed.) of S40 spreading quickly

- Symbian share at 21%, mostly S60 3rd ed.
  - Only 2% point growth since 2007 → S40 now also benefiting from handset bundling?
  - S40 also substituting Symbian, what is max share of Symbian?

N = 4 - 5.75 millions
Mobile handsets by form factor

- Monolith most popular, but decreasing
  - A.k.a. candybar, slab

- 1/5 of handsets with clamshell form factor
  - A.k.a. flip

- Other remarks
  - Popularity of Slide form factor growing
  - Communicator* form factor with a small but stable share
Mobile handsets by primary input method

- Numeric keypad still dominant input
- QWERTY handset share stable at 5%
  - Mostly Nokia Communicators and E-series devices
- Touch screen marginal
  - Growth during 2009?

N = 4 - 5.75 millions

* No data on Apple iPhone
Mobile handsets by age and introduction year

- Mobile handset population renewing continuously

- Average age of handsets about 3 years
  - I.e. difference between measurement year and model introduction year
  - 2008: 3.1, 2007: 2.9, 2006: 3.0, 2005: 2.9
  - Not same as average lifetime, or average holding time, or average time handsets have been in use

- Years 2005 and 2001 particular
  - Models introduced in 2005 popular, due to handset bundling and marketing focus towards advanced handsets
  - Fewer or less attractive models introduced in 2001? Models from 2000 and 2002 more popular

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Summary

• Data from mobile operators’ CDR and subscriber information systems with 80-99% (4–6 millions) of Finnish mobile handsets in falls 2005-2008

• Typical handset with candybar form factor (70% of all handsets), numeric keypad as primary input method (95%), and made by Nokia (90%)
• Nokia S40 the largest developer platform (47%), share of Symbian (21%) not growing rapidly
• Fragmentation of handset population between different models increasing

• Do handset segments explain diffusion of features?
  – Low-end population limits the penetration of mass market features (e.g. packet data, Java, MMS)
  – High-end population defines the diffusion of emerging features (e.g. WLAN, GPS)
  – Mid-range population (roughly 60% of total) needed in diffusion to mass market

→ How are new features introduced to mid-range handsets?