Mobile Handset Population in Finland 2005-2011

MoMIE project report
May 15th, 2012
MoMIE project: Comprehensive view on mobile service usage

MoMIE RESEARCH:
- Surveys on handset panel
- Handset monitoring
- Mobile operator accounting systems
- IP traffic measurements
- Web analytics

Handset population data collection

Sample of users
Sample of devices

2G/3G mobile networks

Operator accounting systems

Network nodes and links

WLAN hot spots

Other wireless access networks (WiMAX...)

Intranets

Internet

Servers

Source: Modified from Kivi, 2009
Data collection: handset population

- Mobile operators’ accounting systems
  - Data from end of Q3, annually 2005–2011
  - Feature information: GfK and public sources

- Represents 80-99% of devices in use in Finnish mobile networks (~98% in 2011)
  - Data from DNA, Elisa, and TeliaSonera
  - Includes devices observed at operators’ network
  - Some error due to
    - No full data on Apple iPhone from 2005-2010 >> available in 2011
    - Mobile subscriber churn during observation period
    - Differences in operator-specific data sets
    - Unidentified devices and missing feature-data of handset models
Growth in data terminals continues

- Size of the active device population depends on definition
  - Relative shares of handsets and data terminals based on MoMIE measurements
  - Here, active device population assumed to equal the total number of subscriptions in Finland, as reported by the operators in public

- USB modems major data terminal category
  - large scale introduction during fall 2007

* Other device types (e.g. desktop phones) excluded from the rest of the analysis. Unknown devices included in estimation of error margins.

** USB modems, data cards, tablets, embedded data modules
Fragmentation of handset population

- Early signs of slowdown in fragmentation visible
  - Amount of available models has remained rather stable since 2008

- Cumulative share of
  - Top 1 model
    - 14% (2005)
    - 3% (2011)
  - Top 10 models
    - 50% (2005)
    - 24% (2011)
Top handset models in use in Finland

All mobile handsets:

<table>
<thead>
<tr>
<th>Rank</th>
<th>Model name</th>
<th>Share of all handsets</th>
<th>Change from 2010</th>
<th>Packet data*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nokia 2760</td>
<td>2,8%</td>
<td></td>
<td>Yes (2G)</td>
</tr>
<tr>
<td>2</td>
<td>Nokia 5230</td>
<td>2,7%</td>
<td>^</td>
<td>Yes (3G)</td>
</tr>
<tr>
<td>3</td>
<td>Nokia 2730 Classic</td>
<td>2,7%</td>
<td>^</td>
<td>Yes (3G)</td>
</tr>
<tr>
<td>4</td>
<td>Nokia 3720 Classic</td>
<td>2,6%</td>
<td>^</td>
<td>Yes (2G)</td>
</tr>
<tr>
<td>5</td>
<td>Nokia 7230</td>
<td>2,6%</td>
<td>^</td>
<td>Yes (3G)</td>
</tr>
<tr>
<td>6</td>
<td>Nokia 3120 Classic</td>
<td>2,4%</td>
<td>^</td>
<td>Yes (3G)</td>
</tr>
<tr>
<td>7</td>
<td>Nokia 3710 Fold</td>
<td>2,3%</td>
<td>^</td>
<td>Yes (3G)</td>
</tr>
<tr>
<td>8</td>
<td>Nokia 1100</td>
<td>2,2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Nokia C5-00</td>
<td>2,1%</td>
<td>^</td>
<td>Yes (2G)</td>
</tr>
<tr>
<td>10</td>
<td>Nokia 2330 Classic</td>
<td>2,1%</td>
<td>^</td>
<td>Yes (2G)</td>
</tr>
<tr>
<td>11</td>
<td>Apple iPhone 4</td>
<td>2,1%</td>
<td>- **</td>
<td>Yes (3G)</td>
</tr>
<tr>
<td>12</td>
<td>Nokia C2-01</td>
<td>2,0%</td>
<td>^</td>
<td>Yes (3G)</td>
</tr>
<tr>
<td>13</td>
<td>Nokia 2720 Fold</td>
<td>2,0%</td>
<td>^</td>
<td>Yes (2G)</td>
</tr>
<tr>
<td>14</td>
<td>Samsung GT-S5230</td>
<td>1,3%</td>
<td>^</td>
<td>Yes (2G)</td>
</tr>
<tr>
<td>15</td>
<td>Nokia E7-00</td>
<td>1,3%</td>
<td>^</td>
<td>Yes (3G)</td>
</tr>
</tbody>
</table>

Smartphones:

<table>
<thead>
<tr>
<th>Rank</th>
<th>Model name</th>
<th>Share of all handsets</th>
<th>Change from 2010</th>
<th>Packet data*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (2)</td>
<td>Nokia 5230</td>
<td>2,7%</td>
<td>^</td>
<td></td>
</tr>
<tr>
<td>2 (9)</td>
<td>Nokia C5-00</td>
<td>2,1%</td>
<td>^</td>
<td></td>
</tr>
<tr>
<td>3 (11)</td>
<td>Apple iPhone 4</td>
<td>2,1%</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>4 (15)</td>
<td>Nokia E7-00</td>
<td>1,3%</td>
<td>^</td>
<td></td>
</tr>
<tr>
<td>5 (19)</td>
<td>Nokia E52</td>
<td>1,2%</td>
<td>^</td>
<td></td>
</tr>
<tr>
<td>6 (21)</td>
<td>Nokia C7-00</td>
<td>1,2%</td>
<td>^</td>
<td></td>
</tr>
<tr>
<td>7 (22)</td>
<td>Nokia N8-00</td>
<td>1,2%</td>
<td>^</td>
<td></td>
</tr>
<tr>
<td>8 (25)</td>
<td>Apple iPhone 3GS</td>
<td>1,0%</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>9 (26)</td>
<td>Nokia C6-00</td>
<td>0,9%</td>
<td>^</td>
<td></td>
</tr>
<tr>
<td>10 (27)</td>
<td>Nokia E75</td>
<td>0,9%</td>
<td>^</td>
<td></td>
</tr>
</tbody>
</table>

* All 2G devices have GPRS/EDGE capability, all 3G devices have GPRS/EDGE/WCDMA capability
** No data on Apple iPhone in 2010
Nokia dominates handset population

Mobile handsets by manufacturer 2005-2011

- **Others**
  - HTC 1%
  - ZTE 1%

- **Samsung**
  - Share growing
  - > 2/3 of Samsung devices with proprietary Samsung OS

- **Nokia**
  - Decrease of 5% points
  - Detailed analysis next

* No full data on Apple 2007-2010

No error margins available. Unidentified devices and unidentified manufacturers neglected from the analysis
Mobile handsets by operating system

- Others 2011:
  - Mobile phones 10%
  - Smartphones 9%

- Total shares 2011:
  - Symbian 26%
  - Series 40 45%

No error margins available. Unidentified devices and unidentified operating systems neglected from the analysis.
Share of smartphones increasing

- Smartphone definition:
  - Possibility to install native applications
  - e.g. Symbian, iOS, Android, Windows Phone, Maemo, MeeGo

- Share of smartphones from 6% (’05) to 33% (’11)
  - Smartphone share in sales ~56% in September 2011

Note:
- No data on iOS from 2007-2010
- Nokia Windows Phone not yet available in Finland during 2011

No error margins available. Unidentified devices and unidentified operating systems neglected from the analysis.
Nokia Series 40 and Symbian diffusion: Substitution between OS generations

**Nokia Series 40 diffusion**
- Series 40, 1.-2. ed.
- Series 40, 3. ed.
- Series 40, 5. ed.
- Series 40, 6. ed.

**Symbian diffusion**
- S80 (+90, UIQ)
- S60 1.-2. ed.
- S60 3.ed
- S60 5. ed.
- ^3 / Anna / Belle
Many features close to saturation
  - Low-end population limits penetration
  - Saturation level for FM radio?

Some features spreading fast
  - Inclusion to mid-range?

Diffusion of radio interfaces stable

Penetration of handset features in Finland 2005-2011 (1)

- WLAN
- GPRS
- EDGE
- WCDMA
- HSDPA
- GPS
- FM RADIO
- BLUETOOTH

N = 4-6.5 Millions

Upper and lower error margins presented with
Display technologies and input methods

Penetration of handset features in Finland 2005-2011 (2)

- Diffusion of TFT slowed down
  - Competition between high-end TFT and AMOLED displays

- Touch screen diffusing fast
  - One of the fastest growing features ever
  - Also in comparison to QWERTY

N = 4-6.5 Millions

3x4 KEY = numeric keypad
QWERTY = QWERTY keyboard
TOUCH = Touch screen
Forecasting feature diffusion: Logic
Combination of handset sales and installed base data

- Mobile handset sales data from GfK
  - Used to calculate the share of features in sales
- Unit replacement parameters calculated using sales and installed base data
- Forecast made for share of features in future sales
- Model calculates the share of features in base
Forecasting feature diffusion: First results

- Forecasts of feature shares in sales based on expert opinion
- Features diffuse in bundles
  - Certain features found together in feature phones, other features in smartphones
- Diffusion of features relatively slow
  - WCDMA will reach 80% penetration in three years, WLAN in four
Conclusions

• Typical handset manufactured by Nokia (81%)
  – Other manufacturers begun to gain market share

• Smartphones (33%) and advanced features spread fast
  – With increasing share of handsets possible to consume advanced services & content
  – Touch screen diffusing fast, substituting numeric keypad

• Forecasts predict stable growth of key features
Further information

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• MoMIE project:
  – Modeling of Mobile Internet Ecosystem
  – http://momie.comnet.aalto.fi/