Consumer Customers
Consumer’s Problem

Conflicting interests

- Consumer tries to maximize consumer surplus, $CS$
- Consumer’s utility (=willingness-to-pay) from a product is dynamic
- Producer tries to maximize producer surplus, profit, $p-c$
- Social planner tries to maximize social welfare, $u-c$
Consumer’s Problem
Utility function for single consumer, single good

\[
\max \left[ u(x) - px \right]
\]

\( u(x) \) is typically increasing and concave
• Consumer chooses \( x(p) \) because of maximal net benefit
• Communications expenditure is small wrt total income
  \( \Rightarrow \) Utility of communications is quasilinear wrt income
  \( \Rightarrow \) Level of income has little impact on \( u(x) \)
Consumer’s Problem
Demand curve for single consumer, single good

- Demand curve (D) and supply curve (S) meet at equilibrium
- Consumer surplus $CS(p) = u(x(p)) - px$
- For simplicity, demand curve, i.e. marginal utility $u'(x)$ is drawn as a straight line
Consumer’s Problem
Multiple consumers and goods/services

- Consider a market with $n$ customers selecting from $k$ services

$$CS_i = \max_x [u_i (x) - px]$$

Vector quantity of services, $x = (x_1, \ldots, x_k)$
Customer $i$ belongs to $N = \{1, \ldots, n\}$
Assume $p(x) = \sum_i p_i x_i$, for a vector of prices $p = (p_1, \ldots, p_k)$

- Demand function for customer $i$ is $x_i(p)$, given vector $p$
- Aggregate demand function is $x(p) = \sum_i x_i(p)$, total demand
- Consumption may cause side-effects (externalities)
- Service demand may depend on other services (cross elasticity)
  - Substitutes
  - Complements
Positive Network Effect: Example

• Assume market of $N$ potential customers, $N = 100$
• Willingness to pay, utility, $u_i(n) = ni$, $i = 1 \ldots N$
• Market is dynamic, i.e. refunding works well
• Given price $p$
  ❌ Potential equilibrium of demand is at $n$ customers
  ❌ The ”indifferent” customer is $i = N-n$
  ❌ For $u_i(n) = p = ni = n(N-n)$
  ❌ Demand curve shows three possible equilibria: 0, A, B

Source: Courcoubetis&Weber/2003
Network effect: example

- Perturbation at A leads to 0 or B which are stable equilibria
- Market failure happens unless positive feedback brings to B
- Setting the price $p$ defines the critical mass of customers $n_1$ needed for success
- Derivative on social welfare is positive at $n_2 .. 100$ (social subsidies justified!)

Source: Courcoubetis & Weber/2003
Consumer service portfolio

Home telephone
  • Number to family/location (analog, ISDN, VoIP)

Home Internet
  • PC broadband Internet access (copper, cable, fiber, WLAN)
  • Value-added services (email, home page, security, …)

Home TV/radio broadcast
  • Signal source (cable, terrestrial, satellite)
  • Signal type (analog, digital/MPEG, digital/IP streaming)

Personal cellular handsets
  • Personal life management
  • Services bundled on SIM card (GSM, WCDMA)
Household spending
Relative proportions of categories
Household spending
Communication as % of household consumption
(OECD average)

Source: OECD, 2004
Media consumption
Mobile is not yet recognized

Kids adopting the mobile culture

(% of age class)

Source: Lapset, nuoret ja matkaviestintä 2000-2002
### Case Japan: Daily Usage Time

**Mobile Internet**

<table>
<thead>
<tr>
<th>Minutes/day</th>
<th>Female</th>
<th>Male</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5</td>
<td>48.28</td>
<td>56.07</td>
<td>53.85</td>
</tr>
<tr>
<td>5-10</td>
<td>22.06</td>
<td>19.86</td>
<td>20.49</td>
</tr>
<tr>
<td>10-20</td>
<td>13.78</td>
<td>9.88</td>
<td>10.99</td>
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<tr>
<td>20-30</td>
<td>8.20</td>
<td>5.74</td>
<td>6.44</td>
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<tr>
<td>30-60</td>
<td>4.68</td>
<td>4.25</td>
<td>4.37</td>
</tr>
<tr>
<td>60-90</td>
<td>1.27</td>
<td>1.44</td>
<td>1.38</td>
</tr>
<tr>
<td>&gt;90</td>
<td>1.72</td>
<td>2.76</td>
<td>2.46</td>
</tr>
</tbody>
</table>

- More than 50% of users use less than 5 min per day
- No clear correlation
  - time of day vs. target content
  - amount of usage vs. target content

Source: MoCoBe.com survey, 2003
Case Japan: Daily Usage Location

Mobile Internet (%)

- Usage follows the duration of presence (except commute)
- No clear correlation between location and content

Source: MoCoBe.com survey, 2003
Case Japan: Usage Summary

Mobile Internet

- Personality drives the usage patterns, not location or time
  - contextual marketing should focus on personality
- 73% of users consider email/chat as #1 app
  - ringtones/pictures is #2 with 6% of respondents
  - email is a killer app!
- Only 26% of users pay extra for mobile Internet content
  - 60% of those who pay extra, pay less than 4 USD/month

Source: MoCoBe.com survey, 2003
Framework of consumer orientation

EXTROVERT

Emphasis on putting oneself in the center and following own drives and urges in a spontaneous and open way

INTROVERT

Emphasis on imposing oneself on the environment in a very controlled and rational way

Relaxed and pleasure oriented

Emphasis on interacting and sharing with others

Restrictive, rational, confined

Emphasis on the safety of the group and using accepted and proven methods and solutions

Receptive Belonging

US

Individualistic Self-esteem

ME

Source: Nokia, 2002
Two Types Of ‘Fun’
Reversal theory

- Consumers make a distinction between two types of 'Fun' in relation to entertainment. **Fun I** is active, stimulating and exciting, to escape from boredom. **Fun II** is more passive, relaxing and calming to escape from stress. People use Media and Entertainment alternately to create these moods. **Younger** identify more with **Fun I** and **Older** with **Fun II**.

Source: ‘Reversal Theory’, Michael Apter
How do I manage my world?

- My bookmarks
- My phonebook
- Communicate
- My social media ??
- My landmarks
- Track

WWW