Done Wireless is now

Marjo Sjöberg
Telecom Forum 22.11.2000
Outline

1. Mgine Technologies
2. Location based products and services
3. Personalization products and services
Mgine Technologies Story

**Companies/technologies**

- **N-Nets**
  - Personalization/neural networks

- **Net Beacon**
  - Personalization/social filtering

- **Axentor**
  - Systems integration

- **NAG M&W**
  - Strategy consulting

- **Regio**
  - Positioning

**April 2000**

- **Done**
  - Wireless
    - Personalization
    - Wireless services

**October 2000**

- **Mgine Technologies**
  - Personalization
  - Positioning
  - Systems integration
  - Consulting

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4.12.2000/3
Mgine Technologies overview

- Software company focusing on personalization and positioning software platforms
- We provide systems integration and consulting that support end-to-end implementation of our software
- Number of employees around 60
  - 50 in Helsinki
  - 10 in Tartu, Estonia

“Mgine Technologies will be the world's leading provider of wireless personalised and location-sensitive software and related services.”
Positioning & Personalization
Huge Market Potential

“Over the next five years, wireless location services will generate more than 81,9 billion USD for the European operators in the top 12 European markets.”
Source: Strategis Group, March 2000

“40 % of all commercial www services will provide personalized services by year 2001”
Source: Gartner Group

“Personalization pays off: personalization increases e-commerce site income 52 % during first year”
Source: Jupiter Communications
Mobile environment and web radically different

**Personal**
- User is in control
- Mobile phone is the key to personalized set of services

**Usable**
- Ready to use in seconds
- Easy-to-use services
- Quality of functions and user interface

**Mobile**
- Able to communicate wherever, whenever
- People will carry phone wherever, whenever
- Platform for localized services

**Trusted**
- Mobile phone is a platform for secure applications
- Transaction capability
Outline

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### Minimum Position Accuracy Required by Service Types

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Rural</th>
<th>Urban</th>
<th>City Centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-OTD, TOA</td>
<td>• Tourist info</td>
<td>• Traffic info</td>
<td>• Fleet management</td>
</tr>
<tr>
<td>PinPoint Mginne</td>
<td>• Emergency</td>
<td>• Advertising</td>
<td>• Delivery tracking</td>
</tr>
<tr>
<td>CGI+TA</td>
<td>• Vehicle rescue</td>
<td>• Asset tracking</td>
<td>• Call routing</td>
</tr>
</tbody>
</table>

- **City Centre**:
  - Personal navigation
  - Emergency
  - Yellow pages
  - Traffic info
  - Fleet management
  - Advertising
  - Personal safety
  - Advanced billing

- **Urban**:
  - Advertisting
  - City info
  - Traffic info
  - Emergency
  - Yellow pages
  - Theft alert

- **Rural**:
  - Tourist info

<table>
<thead>
<tr>
<th>Distance (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
</tr>
<tr>
<td>100</td>
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<tr>
<td>5000</td>
</tr>
<tr>
<td>10000</td>
</tr>
<tr>
<td>35000</td>
</tr>
</tbody>
</table>
Raw data
Pinpoint Mine
Cellplan

With cellplan
Pinpoint Mgine
Repetitive positioning

Location
Mgine result
Pinpoint Mgine
Geography awareness

Raw data
Mgine positioning experiences

- Ready-to-launch applications and application hosting
  - Estonian Rescue Board 112-system
    - In addition to MPS also integration of existing systems, positioning fixed network phones, GIS queries, delivering spatial database
  - www.locategsm.com
    - “I am here!” and other services since June 2000 over HTML and WAP (yellow pages etc.)
    - Fun and edutainment
  - Locate Friend
    - positioning part of EMT portal
  - Asset tracking
    - Anti-theft and car remote control (Ericsson, KG Knutsson)
    - Desktop-based dispatcher applications (like 112)
- Applications tested in real life
  - In EMT network
  - With Estonian customers
  - GPRS testsite
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3. Personalization products and services
What is personalization?

Tailoring of Internet or mobile services for user based on:
- User profiles
- Technical requirements (device, transfer rate, …)
- Situation (time, role, location, …)

User profiles can be based on:
- User Feedback
  - Explicit
  - Implicit
- Usage history
  - Voice call usage
  - Clickstream
  - SMS, services …
- Configurations by user
  - Demographic information
  - Lifestyle & values
  - Service selections
Why is personalization important in mobile services?

- Small display – will stay small
  - Only relevant information should be shown
  - Relevant information should be shown first
  - every click is counted
- Advertising carefully
  - users less irritated if advertisements targeted
  - subscription to push
- Low bandwidth
  - not all information can be sent to mobile
- Context of usage
  - location can be taken into account
Example presentation of personalized content

Traditional news service

---
Ferrari in trouble
Ferrari is in financial crisis. "This is due to enormous party arranged for Michael".

Options  Back

14 clicks vs 2 clicks

Personalized news service

---
Ferrari in trouble
Reliable information sources reveal that Ferrari is in financial crisis. "This is due to

Options  Back
Target of personalization

- **Content**
  - Selecting or prioritizing suitable content
  - Principles: Social filtering, content based filtering, hybrid solutions

- **Layout**
  - Device dependent
  - Fonts, colors, etc.

- **Functionalities**
  - Functionalities offered by a service
  - Menus
  - etc.
Content based prediction vs. collaborative methods

- Content based prediction (Similar objects)
  - If the service is able to follow *what kind of* objects each user has been interested in, *similar* objects can be recommended.
  - Some information of the objects’ features are needed.
  - Can recommend new objects that no one has rated yet.
  - Does not need other users’ profiles.

- Collaborative methods (Similar other users)
  - Each user can be offered new objects that *similar users* have liked.
  - Relies on people’s opinions, does not use any features of the objects.
  - Immaterial values can be taken into account and the service can offer positive surprises.
Personalization technologies

- Rule based
- Statistics
- Social Filtering
- Neuronal Networks
- Bayesian Networks
Social filtering example

Similarities in range $[-1,1]$ between A and B: $0.99$
between A and C: $-0.60$
between B and C: $0.00$

These two books are recommended to user A

Books rated by user B:
- 6
- 9
- 9

Books rated by user A:
- 5
- 10
- 9

Books rated by user C:
- 5
- 4
- 8
- 8
- 9
Personalization case: Viinitupa

- Viinitupa is internet community for wine enthusiasts
- Sonera plaza service
- Personalized:
  - Recommendations
  - Like-minded users
  - E-mail
  - Personal notes about wines
  - Personal wine lists
  - Personal homepage
- Personalization techniques used:
  - Collaborative filtering
  - Rules based matching
Putting wines on a Self-Organizing Map

Faustino V Reserva

Viini: Châteauneuf-du-Pape "Le Moulin Teyroud"

Tuoksu: Rehevä, osittain kehittynyt, miellyttävä tuoksu, josta voi erottaa kahviaromia.

Maku: Pureksittavan paksu ja pehmeä, hedelmäinen maku, jota seuraa tyylikäs ja tasapainoinen pitkä jälkimaku.

Yleisarvio: Voimakkudesta huolimatta viini on varsin harmoninen ja kypsä juotavaksi.

Cornas Les Nobles Rives
The Customer Map

- Similar customers are near each other on the map; very different customers are far apart
- Based on the Self-Organizing Map (SOM) neural network model
Customer Map based on postal codes

The gain chart

0 10 20 30 40 50 60 70 80 90 100

Model Average

0 20 40 60 80 100 120
Customer Map based on transaction data

- Steps in building the model:
  1. Train an SOM for the transaction data – calls, SMS’s, clickstream, payments...
  2. Find each customer’s profile on the transaction SOM
  3. Add other customer data to customer transaction profile data, train another SOM – the customer map
  4. Create bank of arguments for different customer groups; analyze these groups in detail
Positioning of Custom Mgiene

Content Provider

Service Provider Portal

Content Source

Service

Front-end

Content Mgt

Custom Mgiene

Dimension Engine

Neural Engine

Content Analyzing

Data Collector

DB

User Data

DB

DB

DB

End User

CRM Analysis System

Marketer
Benefits of content personalization

Service Provider
- Creating customer commitment
- Lively service via adaptive personalization
- Enables better customer service

Marketer
- User segmentation
- Understanding user behaviour
- Enables targeted advertising

End user
- Discovering relevant information
- Adaptive personalization
- Reliable individual utilization of communities’ opinions
- New experiences

Content Provider
- Content targeting
- Information about users

Personalization
Summary

- Positioning expected to be the major driver in mobile services within next few years
- Personalization expected to be key element in mobile services of the future
- Huge potential in combining positioning and personalization

*Imagination is more important than knowledge*

-A. Einstein