XML-based Data Collection
Case: Tourism Statistics

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Statistics Finland’s strategy

- To offer an electronic option in all data collections by 2007
  - Does not extend to collection of personal data
- It’s the respondent’s choice whether to use this option or not
  - Difficult to use? Resistance to change?
  - Lack of Internet connection
  - Security
Business data collections *(excl. financial statistics)*

- About 45 surveys  
  (excluding collections with less than 30 respondents)

- Web (Internet form) collections in use on 1 May 2005: 15  
  - By the end of year 2006: 45

- Summer- autumn 2005 piloting of direct data collection from enterprise management systems into Statistics Finland (SF) database.

- Paper option will remain for the foreseeable future  
  --> decreases benefits
Development of Tools and Methods

- Paper form
- Diskette form
- Web form

THE PRESENT

- Tapping/Transaction follow-up
- Integration
- Computer-Aided Automated Interview (CAAI)
- Computer-Aided Self Interview (CASI/CSAQ)
- Computer-Aided Personal Interview (CAPI)
- Telephone Interview (CATI)
- Telephone Interview (TI)

Time
Case: Tourism Statistics
Tourism Statistics

- Monthly questionnaire
  - Includes all establishments with 10 or more rooms, cottages or caravan pitches
  - Covers 90% of room capacity in Finland

- Enquiry covered 1,500 accommodation establishments in 2003, of which
  - 779 hotels
  - 213 similar establishments
  - 312 camping sites
  - 113 holiday villages
  - 47 youth hostels
Data collection for Tourism Statistics

- A number of establishments are open only in summer (camping sites, holiday villages)
  - Number of establishments:
    - In summer about 1,500 establishments (max.)
    - In winter about 1,000

- Obligation to supply data is based on the Statistics Act

- Non-response approximately 15%.
- Non-response weighted with capacity approximately 4%
Data collection for Tourism Statistics

- Information that is collected every month
  - Sales income from accommodation
  - Accommodation capacity and room occupancy rate in the reference month
  - Nights spent by country of residence, purpose of visit and mode of lodging
  - Arrivals by country of residence in reference month
Data collection for Tourism Statistics

- Up to this year collected information was keyed manually from paper forms into our database

- From the beginning of 2005 it has been possible to respond by an Internet questionnaire (now 170-200 users)
  - Information is entered manually into the questionnaire
  - In July 2005, there were 185 answers via the Internet

- In autumn 2005 it will be possible to send information direct from hotel management systems into our collection database
  - Typically, no manual input needed at Statistics Finland or at hotels
Data collection with paper questionnaire

Accommodation establishment → manual
Accommodation establishment → manual
Accommodation establishment → manual
Accommodation establishment → manual
Accommodation establishment → manual

Accommodation establishment → print
Accommodation establishment → print
Accommodation establishment → print

Statistics Finland → manual
Statistics Finland → manual
Statistics Finland → manual

Database

Manual phases needed
From SF to accomm. est.
- Reminders and feedback by snail mail

Head agency

Statistics Finland
Data collection with paper questionnaire

- Paper questionnaire
  - By mail
  - By fax
- The questionnaire is also available in Excel format
  - By email
Data collection via the Internet

- Manual input needed at hotels but not at Statistics Finland
- Reminders and feedback by email
Data collection via the Internet

- Internet-based data collection is implemented using Statistics Finland’s generic collection application
- Provides the respondent with an Internet questionnaire that can be filled with a browser
- The questionnaire contains basic validation routines for typical errors
- Each respondent has an account that can be used for Internet-based collection
  - Internet questionnaire
Data collection for Tourism Statistics
Response activity via the Internet

Tiedustelun vastauslukumäärät päivittäin

- Time series chart showing daily response counts.
- The chart has horizontal bars representing the number of responses per day.
- The x-axis represents the number of responses, while the y-axis shows the date.
- The chart includes a legend and buttons for updating the data and printing.

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Direct data collection

- No manual input needed
- Reminders and feedback by email
Direct data collection

- Data are delivered direct from hotel management systems into our database
  - No manual work needed (except to initiate the transfer)
- After their reception data are submitted to the standard validation process
- Software vendors implement a module for the hotel’s management software using Statistics Finland’s definitions for data and service interface
- Implemented using typical B2B integration technique: XML Web Services
Technical solution
What is XCola?

- A generic application for Web surveys
  - Typically for surveys aimed at enterprises
- Meaning that the surveys
  - Conform with each other
  - Are developed using modern techniques and technologies
  - Can be developed “easily”
...and technically?

- An engine that reads XML questionnaires as input files and outputs them as Web forms
- Typically does a lot of processing for the questionnaires between the input and output phases
  - Enabling the dynamics for the surveys
The power of XML

- The questionnaire described in XML can be used in different dissemination formats.
- XML can be used to define the structure and the basic functionality of the questionnaire.
- The functionality can be:
  - Different question types (dropdown and selection lists, etc.)
  - Standard validations (comparisons, compulsory fields, data types)
  - Customised forms (pre-fill, dynamic tailoring)
XCola in a nutshell

- Represents an example of a Web survey
- Processes the XML questionnaires and transforms them into Web applications
- Supports client and server side validations
- Executed on the server side, does not require any installation on the respondent side
- Works on every modern browser
- Extremely simple
- Easy to implement questionnaires in just hours
References: