Digital Data Collection
Business Surveys

Rasmus Ostenfeld Firia-Holme
Email: roh@dst.dk

Lise Stahl Jacobsen
Email: ljc@dst.dk

Outline

• Business architecture
• IBS and XIS
• The data gathering process
• Applications architecture
• Practical examples
• The respondent’s way through a web questionnaire (Virk)
• Dynamic verification in questionnaires
IBS and XIS

- **IBS** (Provider of Statistical Information)
  - Central data collection administrative software
  - Main features:
    - Manage and keeping track of sample units
    - Keeping track of the collection process

- **XIS**
  - Central database
  - Data saved in a uniform standard
  - Data can’t be deleted
Managing and Tracking Sample Units with IBS

- Manage sample units
  - Prefilling data to XIS
  - Dispensations
  - Manual media differentiation
  - Send out letters, e-mails and Digital Post
- Tracking units
  - Who has reported
  - Who need "special" attention and treatment
  - Automatic media differentiation
  - Police reports

Keeping Track of Collection Process

- When to start new collection process
- When to send out reminders
- Did we reach our contribution rate yet?
Applications Architecture

Virk to XIS:
- Reported data
  - Reported contact information
  - Prefill data

IBS

IBS Application
Managing and Tracking units

Managing and tracking The Data Collection Process
Contacting Units

1. Differentiate units by media
2. Generate letters
3. Sending out letters
4. Postprocessing
Contacting Units

Does it Work?

• We wanted to digitize and automate data collection
  ▪ Most letters are digital
  ▪ Most reports are digital
• …but we still have more to do
The respondent’s way through the web questionnaire

Virk.dk

Government’s Business Internet Portal

A single entrance to the public sector

Including questionnaires to Statistics Denmark

71 digital questionnaires on Virk.dk

110 in 2015
Intro page – Virk.dk

- Start button
- Description
- Instructions
- Contact info

Intro page – dst.dk

- Start button
- Description
- Instructions
- Support request form
Support request form

Login

- Employee certificate
- Identify and act on behalf of the company
- Types
  - Code card
  - Key file
  - Digital Signature
Overview and status

Forwarded to Statistics Denmark’s web page

Overview of current periods and their status

Possible to choose other current questionnaires

Contact information

- Name
- Telephone
- Preferred form of communication
Questionnaire page

- Instructions
- Input fields
- “Close and save a draft” button
- “Back” and “Forward” buttons

Validation message

“The price per kilo seems LOW: Edit or add a note above”
Respondent evaluation

Evaluating
- Time used
- Problems
- Suggestions

Input to future re-design

Receipt

Thank you for reporting to Statistics Denmark

Link to copy of reported data

Link back to overview page
Copy of reported data

- A copy of the reported data can be printed and saved
- Pdf file

Dynamic online verification

Previously: Errors were found AFTER the we received the paper questionnaire

Today: Rules are run during the questionnaire response and results are presented to respondent immediately

- When respondent is focused on task
- When respondent expects it
Dynamic verification - Grades

Soft verification:
Respondent can act or ignore

Semi-hard validation:
Respondent must correct, explain or confirm

Hard validation:
Respondent must correct data before continuing

Dynamic verification - examples

- Key variables must be filled in
- Data must be: number, positive/negative value
- Value must be: 0-100, < 100, = 100
- Data must match: pattern, industry code etc.
- Verification between responses:
  - Total of wages paid ↔ Number of employees
  - Calculate and show average salary per employee
  - Respondent can edit or confirm
With or without "VAT" must be filled out

<table>
<thead>
<tr>
<th>Månedens omsætning til private</th>
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<tbody>
<tr>
<td>Angiv omsætning ekskl. eller inkl. moms:</td>
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<tr>
<td>Fødevarer og andre dagligvarer:</td>
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<td>inkl. driftsvarer, tokskriver, tokskriverartikler, røgningsshedverk</td>
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<td>Bøkstavlind og fodtøj mv.</td>
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<tr>
<td>Andre forbrugsvarer</td>
<td>Inkl. alle læder, stoffer, bøggekæler, og brand</td>
<td>moms</td>
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<td>T alt.</td>
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De markerede felt er nu invadere skilret eller udfyldes før der kan fortsatbes:"Angiv om omsætning er ekskl. eller inkl. moms

Key values must not be missing

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Data must be positive number

Dynamic online verification

• Better data quality (the first time)
• Reduce re-contact
• Reduce data editing
Thank you