The Relevance of Qualitative Testing and Evaluation Methods in the Statistical Production Process

QUEST Workshop, Bergen Norway

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Organisation of Statistics Norway

- Board
- Director General
- International Development Cooperation
- Planing and finance
- Human resources and dissemination
- Data collection
- IT and methods
- Department of Economics, Energy and the Environment
- Department of Social Statistics
- Department of Industry Statistics
- Department of National Accounts and Financial Statistics
- Research Department

Director General
Department for Data Collection

- Established 1.1.2009
- Consisting of 5 divisions + Director’s staff of 2 senior advisors

- **Division for Statistical Populations**
  - 29 employees

- **Division for Survey Planning and User Testing**
  - 18 employees

- **Division for Questionnaire Design and Data Collection**
  - 25 employees

- **Division for Interviews**
  - 17 employees + 200 interviewers

- **Division for Data Processing and Support**
  - 49 employees
Statistical Business Process Model at Statistics Norway

1. Specify needs
2. Develop and design
3. Build
4. Collect
5. Process
6. Analyse
7. Disseminate
8. Quality management - evaluate and feedback
9. Support and infrastructure
Phase 1. Specify needs

1. Determine need for information
   1.1. Identify need for information
   1.1.1. Develop concepts
   1.1.2. Specify need in consultation with key users
   1.1.3. Confirm need with key users

2. Consult and confirm need
   1.2. Identify key users
   1.2.1. Specify need in consultation with key users
   1.2.2. Create conceptual definitions of variables
   1.2.3. Create table outlines

3. Establish output objectives
   1.3. Create operational definitions of variables
   1.3.1. Create conceptual definitions of variables

4. Check data availability
   1.4. Determine internal sources of data to meet information need
   1.4.1. Determine availability, suitability and access to data
   1.4.2. Determine external sources of data to meet information need
   1.4.3. Make an agreement with data providers
   1.4.4. Conduct gap analysis between information need and available data
   1.4.5. Prepare strategy for collecting missing data

5. Prepare business case
   1.5. Make a project description/work plan
   1.5.1. Make a project description/work plan
   1.5.2. Determine the budget and financing
   1.5.3. Approval and kick off
   1.5.4. Make an agreement with data providers
   1.5.5. Conduct gap analysis between information need and available data
   1.5.6. Prepare strategy for collecting missing data

Need for information

Approved project/work plan
Phase 2. Develop and design

Outputs
2.1
- Design outputs and products 2.1.1
- Define and set goals for product quality 2.1.2
- Define preservation and destruction requirements for data and metadata 2.1.3
- Develop and design dissemination 2.1.4

Frame, register and sample methodology 2.2
- Analyse register sources 2.2.1
- Describe possibilities to combine different registers 2.2.2
- Analyse population coverage and sample options 2.2.3
- Produce sample design 2.2.4

Data collection methodology 2.3
- Detailed user needs 2.3.1
- Develop and analyse data requirements 2.3.2
- Compare and choose collection method 2.3.3
- Develop collection instrument 2.3.4
- Design process routines 2.3.4

Process and analysis methodology 2.4
- Research statistical methodology options 2.4.1
- Develop new or update existing statistical method 2.4.2
- Develop and design analysis 2.4.3

Production system 2.5
- Produce preliminary user requirement specification 2.5.1
- Produce detailed user requirement specification 2.5.2
- Produce delivery plan 2.5.3
- Produce test plan 2.5.4

User test/ pre-test 2.3.5
Approve the collection instrument 2.3.6
Plan receipt of data 2.3.7
Phase 3. Build

Build and enhance process components 3.1
- Construct components of production system 3.1.1
- Implement components of production system 3.1.2
- Test components of production system 3.1.3

Integrate production system with other systems 3.2
- Update and add information in metadata systems 3.2.1
- Produce new and improve existing process and dataflows 3.2.2
- Assemble components in production system 3.2.3

Test production system 3.3
- Perform integration test 3.3.1
- Perform system test 3.3.2
- Perform pilot test 3.3.3
- Perform acceptance test 3.3.4

Finalise production system 3.4
- Plan roll out of production system 3.4.1
- Finalise system documentation 3.4.2
- Train users and administrators of the system 3.4.3
- Roll out production system 3.4.4
Strategy 2007

- Statistics portray society
- Research of high quality
- Satisfied users and motivated respondents
- Cooperation to improve statistics
- Quality in every process
Quality at all levels

• Best methods and practice
• Systematic quality assurance of processes and products
• Human resources
• Prepared for change

Quality in statistics:
• Relevance
• Accuracy
• Timeliness and punctuality
• Comparability and coherence
• Accessibility and clarity
The point of departure for systematic quality work is the "user needs".

The users demand "product quality":
- Relevance
- Accuracy and Reliability
- Timeliness and Punctuality
- Coherence and Comparability
- Accessibility and Clarity

Study of processes is a precondition for improvements:
- Sound Methodology
- Appropriate statistical procedures
- Non-Excessive Burden on Respondents
- Cost effectiveness

Structural conditions provide a framework:
- Professional Independence
- Mandate for Data Collection
- Adequacy of Resources
- Quality Commitment
- Statistical Confidentiality
- Impartiality and Objectivity
Underdekning
Feilklassifisering
Behov for editering av rådata
Tilgjengelig informasjon om brukertilfredshet
Relevans
Variasjonskoeffisient
Partielt frafall
Enhetsfrafall
Aktualitet
Punktighet
Sammenlignbarhet over tid
Sammenlignbarhet på tvers av områder

Skjema
Register
Challenges

• Pressure to reduce costs
  – Design for cost effective data collections
  – Electronic data collection
  – Mix/combination of modes

• Lots of effort put in revision of raw data
  – Improve the quality of survey instruments
  – Seek information about the respondent’s motivation and ability to report data

• Need for improvement of actuality
  – Smoother data collection processes
  – More attention to the develop- and design phase
Statistical production process

1. Specify needs
   - 1.1 Determine need for information
   - 1.2 Consult and confirm need
   - 1.3 Establish output objectives
   - 1.4 Check data availability
   - 1.5 Prepare business case

2. Develop and design
   - 2.1 Outputs
   - 2.2 Frame, register and sample methodology
   - 2.3 Data collection methodology

3. Build
   - 3.1 Build and enhance process components
   - 3.2 Integrate production system with other systems
   - 3.3 Test production system

4. Collect
   - 4.1 Establish frame and registers, select sample
   - 4.2 Set up collection
   - 4.3 Run collection

5. Process
   - 5.1 Classify and code
   - 5.2 Micro-edit
   - 5.3 Macro-control
   - 5.4 Impute for partial non-response
   - 5.5 Finalise collection
   - 5.6 Calculate weights and derive variables

6. Analyse
   - 6.1 Acquire domain intelligence
   - 6.2 Produce statistics
   - 6.3 Quality assure statistics
   - 6.4 Interpret and explain statistics
   - 6.5 Prepare statistics for dissemination
   - 6.6 Finalise content

7. Disseminate
   - 7.1 Prepare data for dissemination database
   - 7.2 Produce product
   - 7.3 Release and promote product
   - 7.4 Manage user queries

Outputs
- 1.1 Determine need for information
- 1.2 Consult and confirm need
- 1.3 Establish output objectives
- 1.4 Check data availability
- 1.5 Prepare business case

Frame, register and sample methodology
- 2.1 Outputs
- 2.2 Frame, register and sample methodology

Build and enhance process components
- 3.1 Build and enhance process components
- 3.2 Integrate production system with other systems

Establish frame and registers, select sample
- 4.1 Establish frame and registers, select sample
- 4.2 Set up collection

Classify and code
- 5.1 Classify and code
- 5.2 Micro-edit

Prepare business case
- 1.5 Prepare business case