

# Quality Driven Data Collection - Towards a System for Quality Management based on Dashboard Information

Presentation Q 2016 Madrid

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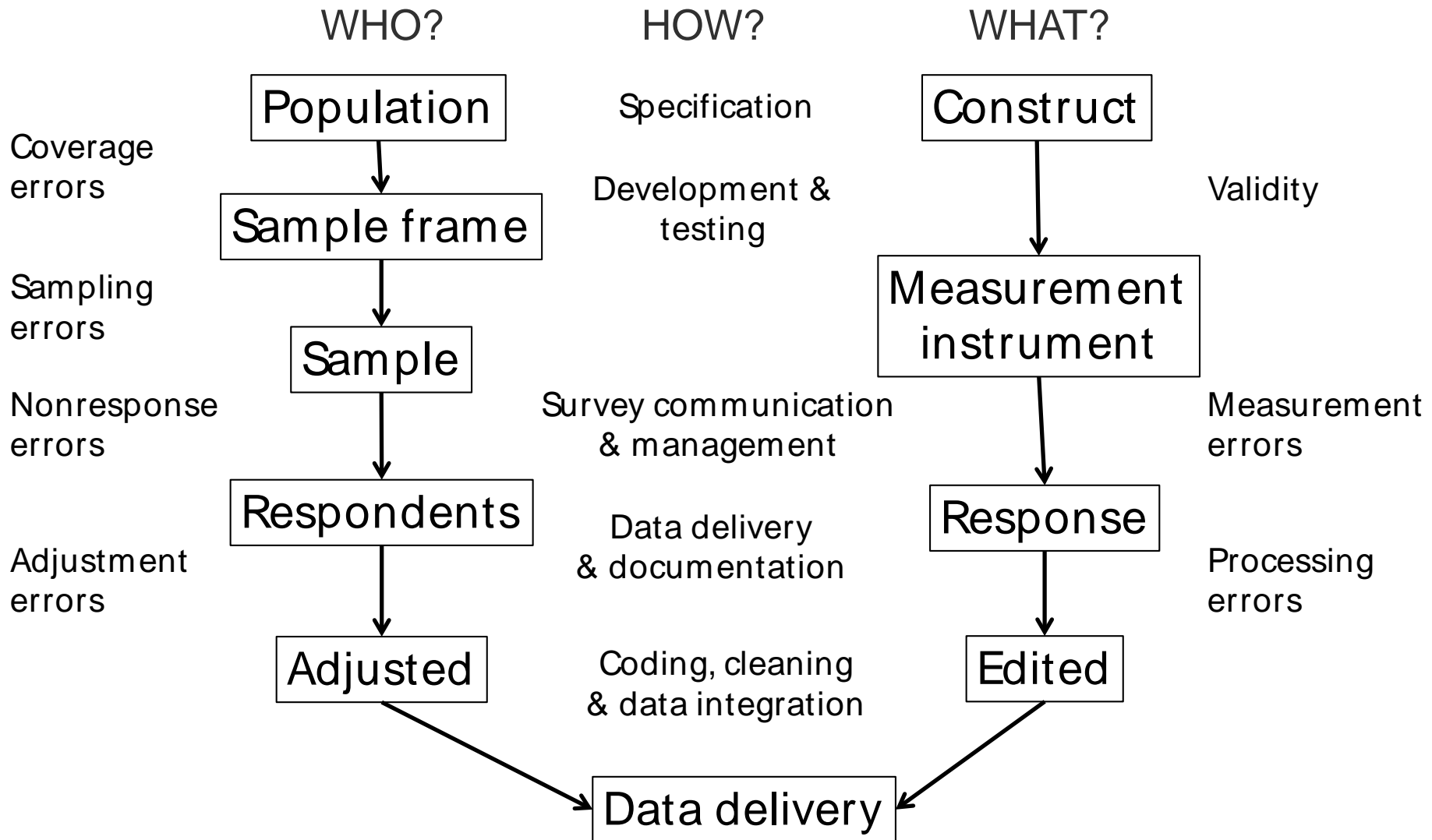


**Statistisk sentralbyrå**  
Statistics Norway

# Outline

- Sources of data collection errors
- Today's practice – use of indicators
- Quality indicators to come
- Dashboard information – data of interest
- Statistical process control

# Sources of data collection errors: Sample, management & instrument



# Today's practice – Use of indicators

- Annually reported indicators to the Ministry of Finance (survey response, response burden...)
- Department level (annual activity plan...)
- Unit level (error reporting list, number of inquiries...)
- Data collected: System for sample unit administration and system for administration of interview surveys

# Quality Indicators to come (example: SBS survey)

- Perceived and Actual Response Burden

$$\text{Cost Efficiency} = \frac{\text{Quality}}{\text{Costs}} = \frac{\text{Perceived Response Burdens}}{\text{"Actual Response Burden"}}$$

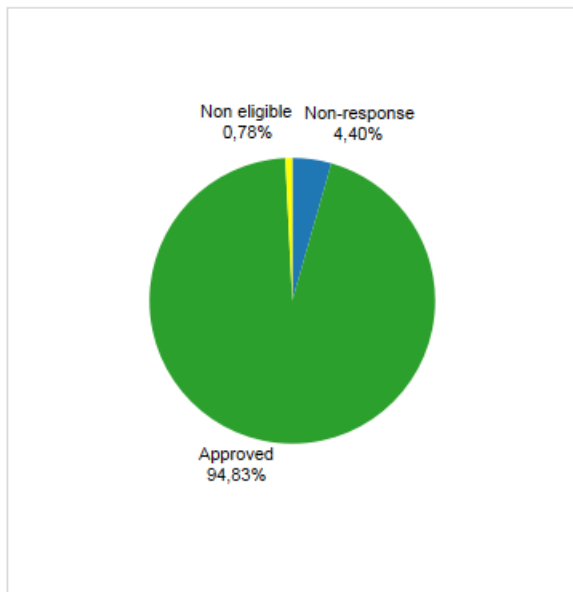
- Response analysis
  - Item nonresponse
  - Invalid response formats
  - Logical errors
  - **Mathematical errors**
- Tailored Paradata
  - Timestamps
  - Corrections made

# Dashboard information –Data of interest

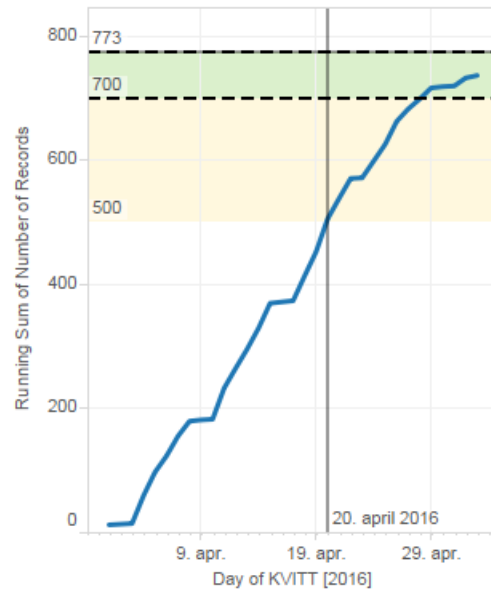
- Response indicators
- Sample distribution data
- Process data/administrative data
- Survey quality indicators

# Dashboard example

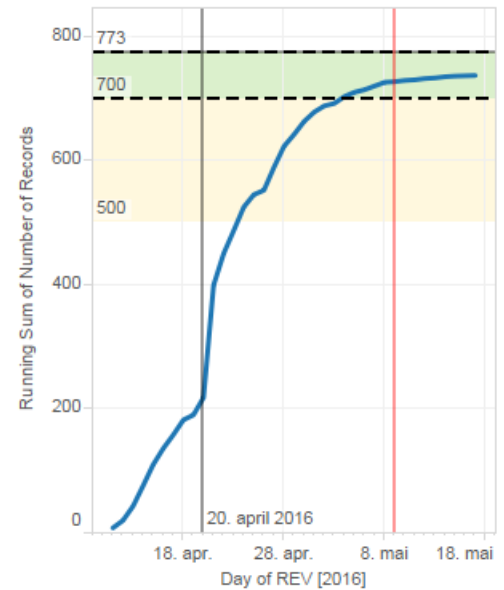
## Total response



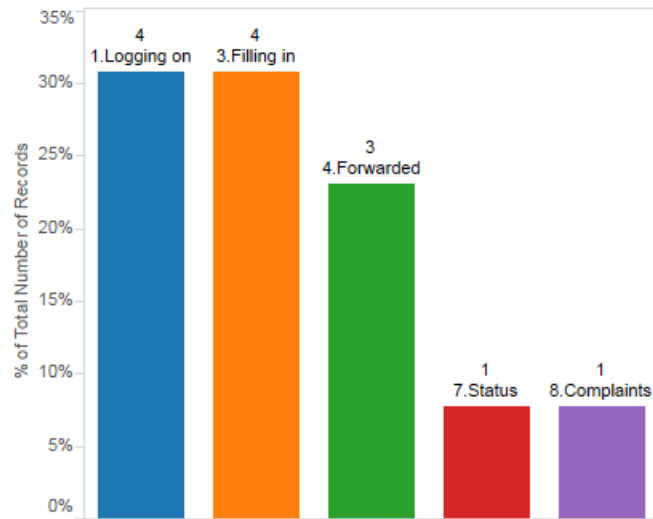
## Accumulated response



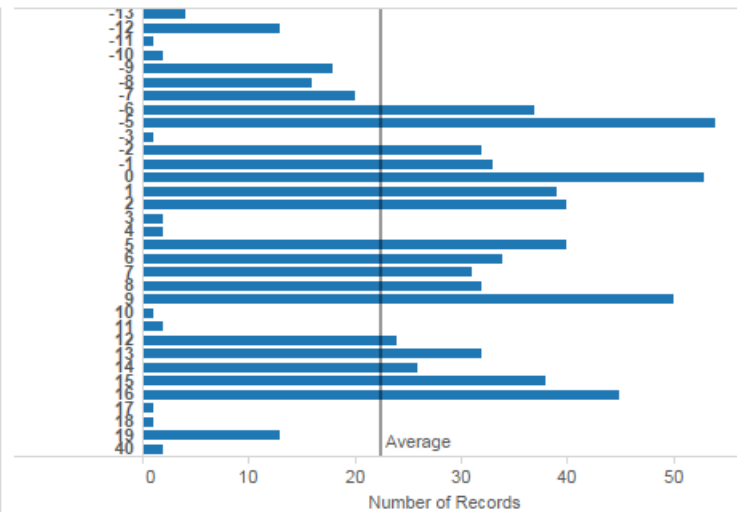
## Accumulated responses edited



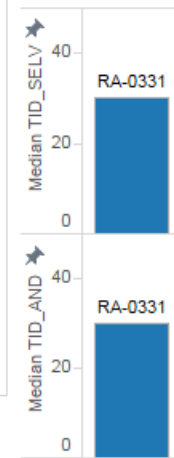
## Distribution of questions by category



## Response before/after original deadline (Deadline = 0)



## Response burden Median



# Statistical Process Control applied on Data Collections

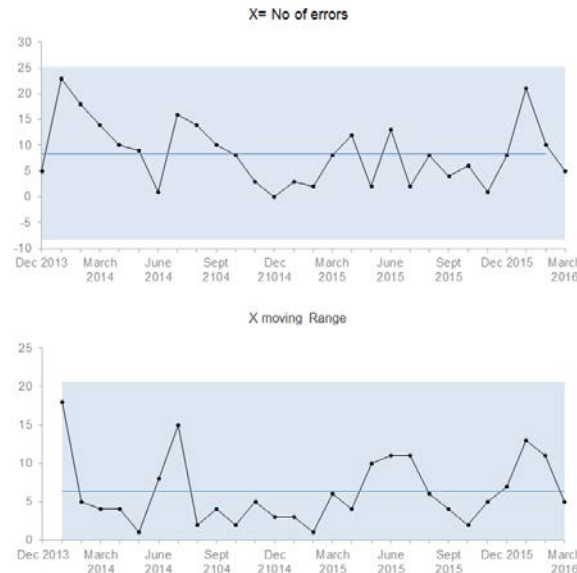
- Most variation is routine variation
- Statistical Process Control is about identifying results that are not routine
- Process charts are used to distinguish between routine and non-routine incidents
- Incidents that are not routine may either indicate a problem or a success
- Causes of non-routine incidences are found in the details
- Data collections are a mixture of internal and external processes
- Quality is defined as absence of errors caused by these processes



# Data Collection Dashboard Design



## XmR Sensors



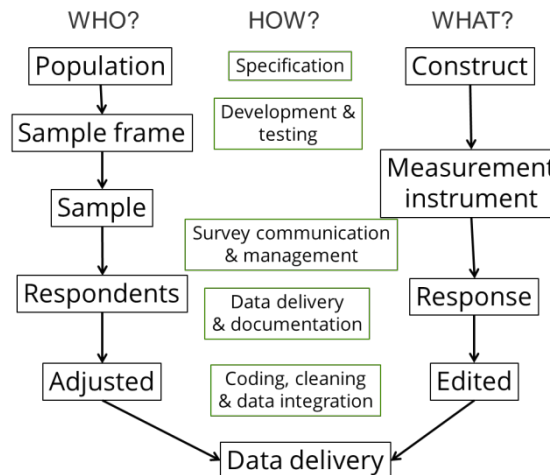
1. Values outside the natural process limits
2. Eight consecutive values on the same side of the central line

## Analysis



### Variations:

- Within categories
- Within measures
- Across space
- Through time



### Relationships:

- Among measures
- Among categories