Smart Survey Implementation

https://cros.ec.europa.eu/dashboard/trusted-smart-surveys

"The integration of traditional surveys with new data produced from smart surveys"

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Agenda

1. Smart surveys – what are they?

2. Smart and non-smart surveys

3. Two methods of integration

4. Ways forward

What is a smart survey?

Three ingredients:

1. A survey

2. A 'smart' element
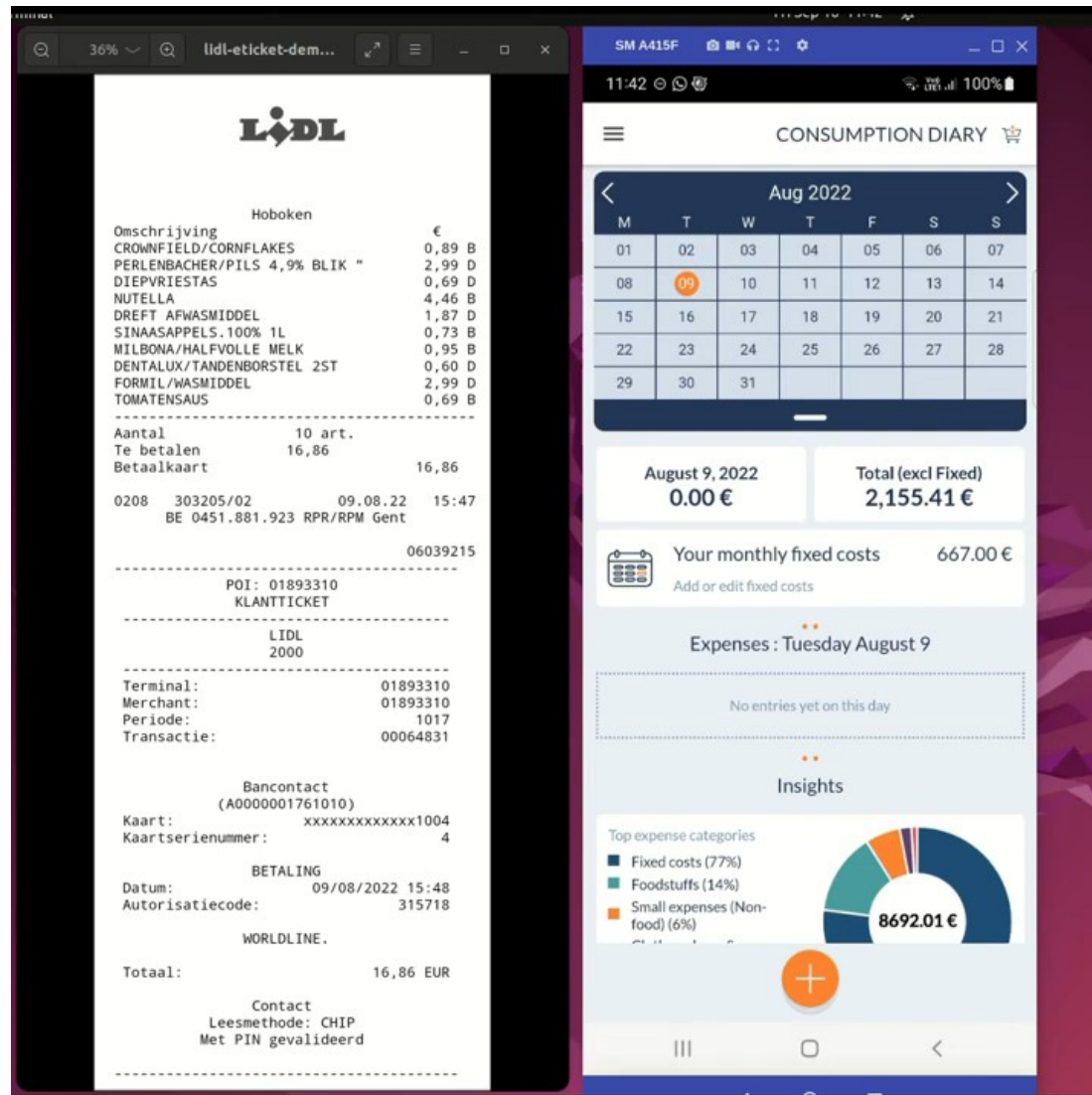   - Sensors to collect other data: pictures, audio, locations, movements, etc.

3. Integrate the survey and smart element
   - After data collection: e.g. Fitbits with questionnaires on activities
   - During data collection: smartphone apps
     - Sensors help to make task easier
     - Sensor data are often processed on phone
     - Respondents can interact with sensor data

Schouten & Lugtig (in review). Combining surveys and organic data from sensors in Designed Big Data. Three case studies. *Journal of Official Statistics*

Smart Survey Implementation (2023-2025)

- Funded by Eurostat
  - Follows on Trusted Smart Statistics (2020-2022) project

- Microservices for handling sensors within apps (IT)
- Methodology
  1. Recruitment
  2. Machine Learning
  3. User Interaction
  4. Mode effects
- Legal/ethical, data lifecycle, governance

An illustration: Household budget Survey

Youtube video:
Hbits (2023)
https://www.youtube.com/watch?v=BvmD5Zqv27s

In contrast: non-smart

Source: Irish Household Budget study 2022. https://www.youtube.com/watch?v=xRObt45RjAo

Integration and mode effects - why worry?
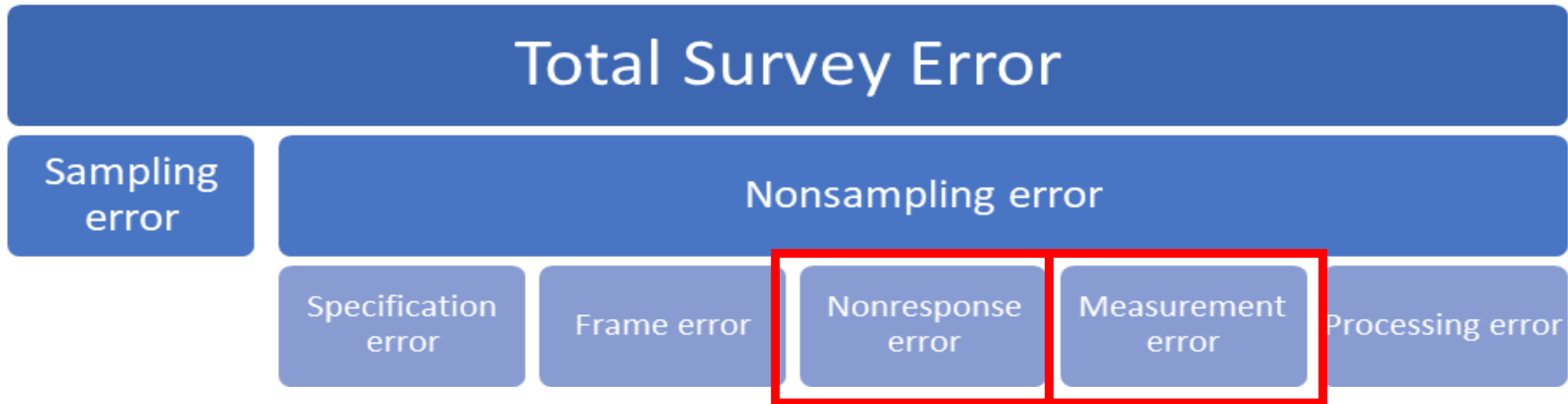
- Smart surveys aim to improve measurement – and do by a lot
- Studies so far (Lugtig et al, 2021; Keusch et al 2019;2020) show that smart surveys suffer from nonresponse issues
  - Problems with older people, lower educated

# Prepare for a future mixed-mode smart surveys

- Smart surveys for some -> via mobile app

- Traditional survey for others -> web survey and/or paper

- Smart survey project conducts pilots:
  - Belgium: mix apps, web and paper for Time Use Survey
  - Germany: mix different levels of smartness in survey in Household Budget
  - France: within-respondent studies (both paper and app) in Household Budget
  - Italy: web/app survey and fully smart survey

Two approaches

- 1. Mixed-mode approach
  - Combine multiple instruments into one database
  - Input harmonization
  - Integration before data analsysis

- 2. Data integration approach
  - Different instruments, different estimates
  - Output harmonization
  - Integration after data-analysis

Two approaches and TSE

- 1. Mixed-mode approach
- 2. Data integration approach
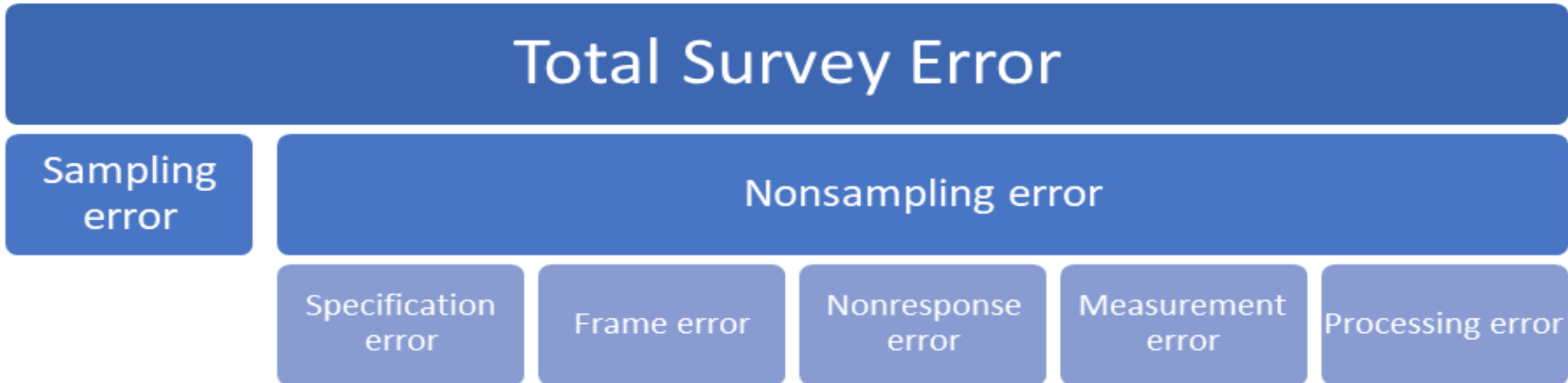
Ways forward

- Experiments conducted in SSI project in 2024
  - Paper vs. web vs. app-administration
  - Different levels of smart surveys
    - Automatic classification
    - User involvement
  - Across countries

- Work out the two approaches for different datasets
  1. Mixed-mode
  2. Data integration
- Estimates for size of the shift due to switch to smart surveys
  - Can help inform future design
  - Bridge gaps in time-series

Thank you

- Questions: p.lugtig@uu.nl