

# Trusted Smart Surveys

Revolutionising data collection with modern survey technology



## The project

In today's fast-changing data world, the European Statistical System (ESS) Innovation Agenda aims to meet the fast-rising demand for new, more timely and detailed statistics that people need and trust. As part of this agenda, Trusted Smart Surveys can revolutionise data collection by combining traditional survey techniques with modern technological advancements, keeping the respondent at the heart of the data they submit.

These surveys intelligently combine self-report questions with smart features collected via sensor-enabled devices such as smartphones, wearables and other devices, aiming to enhance data quality, reduce burden on participants, and provide more timely and granular data.

The Trusted Smart Surveys project seeks to develop this concept by showcasing a complete, end-to-end data collection process.

This involves:

- ✓ engaging citizens as active contributors;
- ✓ acquiring, processing and combining data from smart devices through sophisticated artificial intelligence (AI) and machine learning (ML);
- ✓ making respondents central persons in the evaluation of AI-ML;
- ✓ ensuring strong privacy safeguards.

The project prioritises a design approach over an application-based structure, aiming to develop, test and evaluate smart services through topical and realistic case studies.



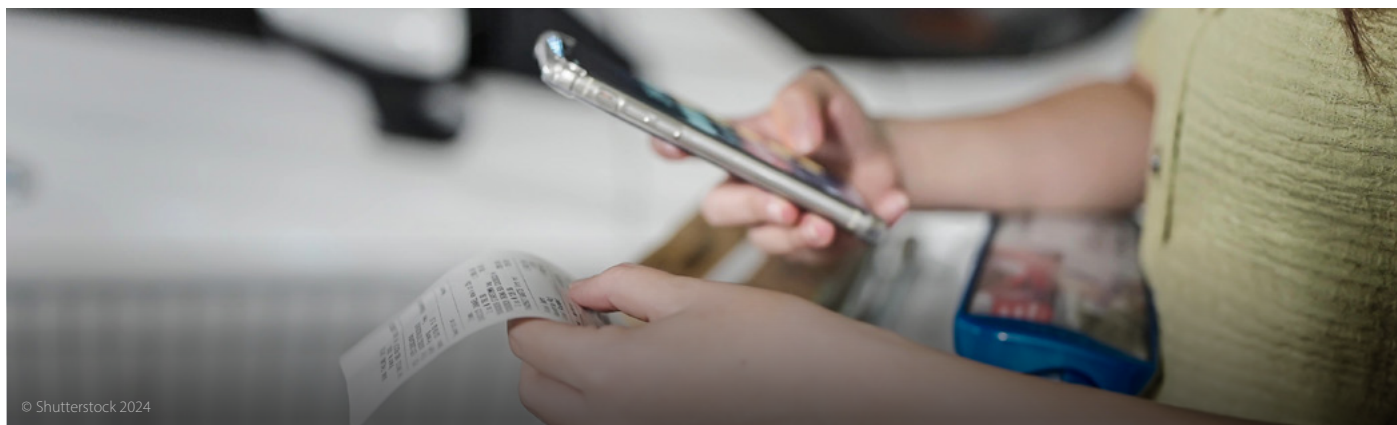
## The motivation

Trusted Smart Surveys adhere to the technological and computational potential of smart devices that many citizens to date know and expect. However, this potential can only be used when Trusted Smart Surveys simultaneously play an important role to ensure the security of personal information.

The project aims to develop a proof-of-concept data collection process and demonstrate a solution applicable to Household Budget Surveys (HBS), Time Use Surveys (TUS) and first draft for energy service. The code of these services will be available for use as open source.

It requires methodological and technical developments regarding:

- involvement and engagement of citizens;
- acquiring, processing and combining data collected from smart devices and other appliances using ML techniques (end-to-end technological solution);
- user interfaces and user experiences, in particular for the evaluation and adjustment of ML predictions;
- privacy preservation



© Shutterstock 2024

## The methodology

The project applies research to advance and develop Trusted Smart Surveys. These surveys employ smart personal devices that combine two types of data:

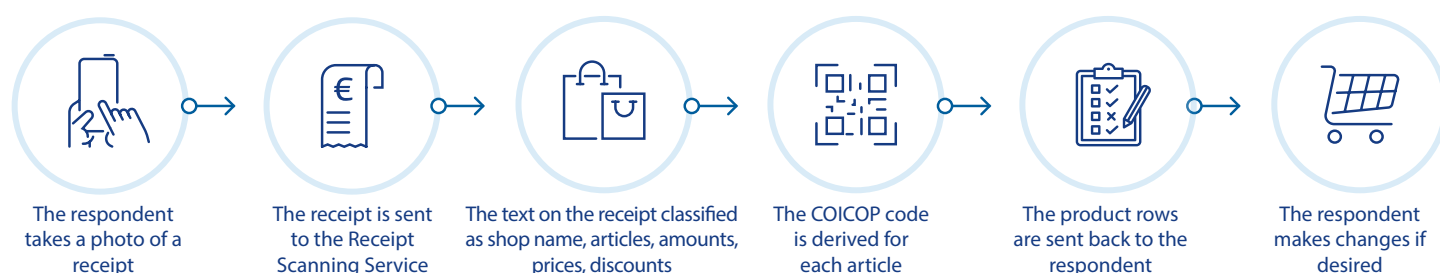
1. (inter)active data such as responses to queries or sharing images, which is explicitly provided by the respondent;
2. passive data, which is collected by background sensors such as accelerometers and GPS.

The project also has two main viewpoints that form a matrix where tasks and deliverables are organised:

1. The first approach involves the four main elements of smart surveys: Methodology; IT architecture; Logistics/operations; and Legal-ethical issues. These elements were identified as stages in the second approach and used to explain how smart surveys work.
2. The second approach relates to the maturity of smart surveys, specifically whether they can be considered as end-to-end solutions. Here, three stages are identified: Review; Baseline; and Smart.

- The Review stage revisits ESSnet Smart Surveys, looks at progress both within and outside of the ESS and identifies gaps in all four elements.
- The Baseline stage is the first step where smart surveys may be considered ready for production, but still open to further smartification.
- Finally, the Smart advanced stage introduces new smart features, especially those that have not yet been studied. Smart features may include:
  - in-device processing and storage;
  - employment of in-device sensors;
  - linkage to external sensor systems;
  - access to public online data;
  - data donation through the respondent;
  - data donation through the National Statistical Institute after respondent consent.

### The receipt scanning process for HBS



**Technologies and methodologies involved:** AI-ML, smart devices

## The team

- **Member States involved:** The Netherlands (coordinator), Belgium, Germany, France, Italy, Norway, Slovenia
- **External partners / researchers involved:**
  - hbits (Belgium)
  - University of Mannheim (Germany)
  - Utrecht University (The Netherlands)
  - Free University of Brussels (Belgium)

## The timeline

- **Project initiation:** 2023
- **Estimated time to deliver impact:** 2027

## More information

**Links to project website:**

- [Trusted Smart Surveys](#)