Innovation in online data collection for scientific research:
The Dutch LISS panel

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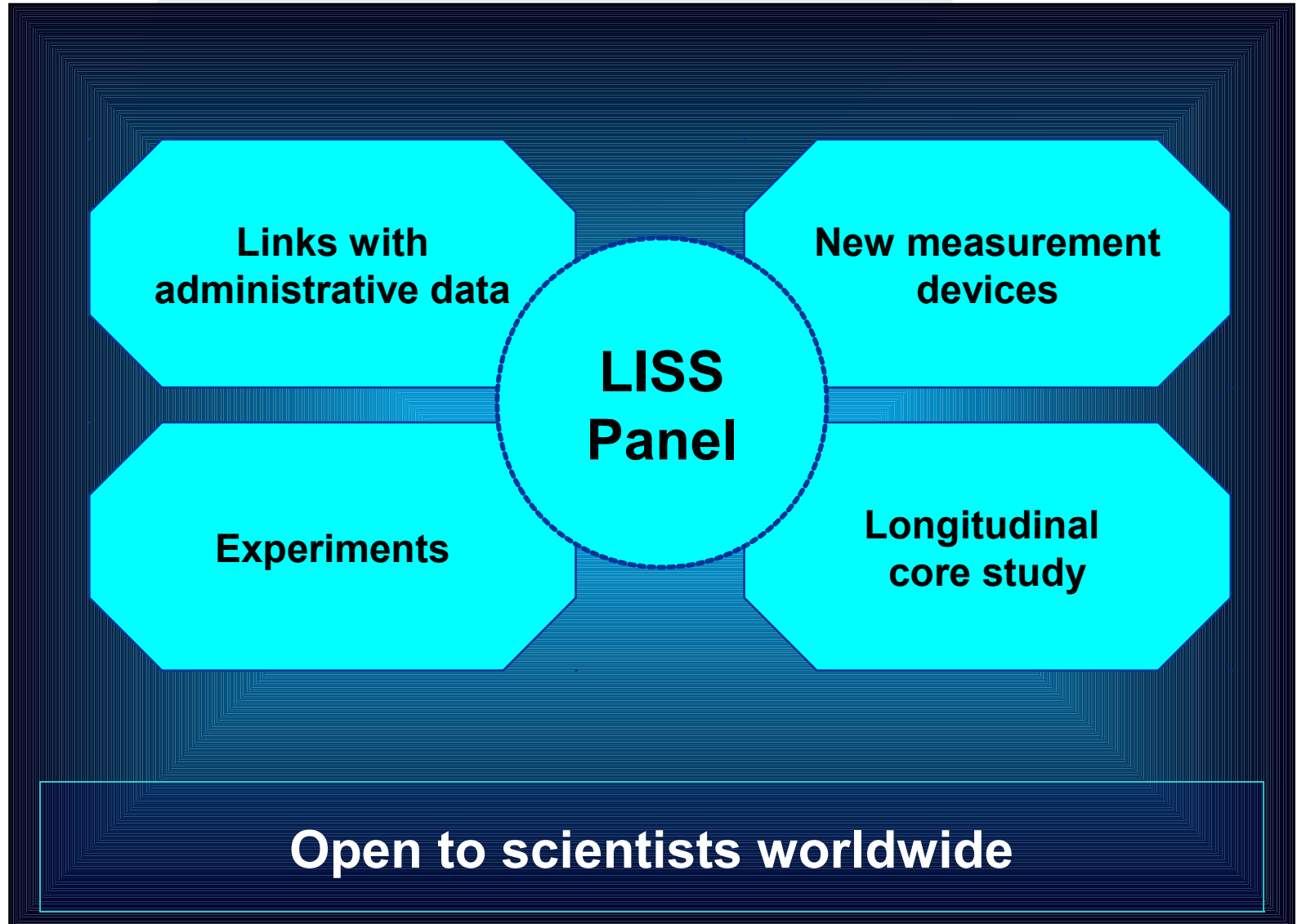**CentERdata**
Institute for data collection and research

Background

Internet interviewing is a cost-efficient alternative to the traditional modes (Dillman and Bowker, 2001)

but there is more …

- maximal opportunities for innovation
- fast: data become available for analysis much more quickly
- technology allows for experimentation, (easy) follow-up data collection, and feedback from respondents

MESS Project: a highly advanced research infrastructure for the Social Sciences

Links with administrative data

New measurement devices

LISS Panel

Experiments

Longitudinal core study

Open to scientists worldwide

Central element MESS project: LISS panel

- Online panel of 4,500 households
  - 7,000 individuals (>= 16 years)

- Questionnaires each month, 30 min.

- Incentive 15 euro an hour (average)

Why use online panels for scientific research?

Disadvantages online surveys

- <u>Noncoverage</u>:

  - ➤ Persons without Internet are usually excluded

- <u>No probability sample</u>:

  - ➤ Visitors of specific websites

  - ➤ Self-selection (interested, strong opinions, specific goal)

LISS panel

- Online interviews as method, but:

- Probability sample drawn from address sampling frame of Statistics Netherlands

- Includes households without Internet access (less than 15%): CentERdata provides equipment

- Contacted by letter, telephone or visit

simPC

Small and silent

Only the most frequently used functions

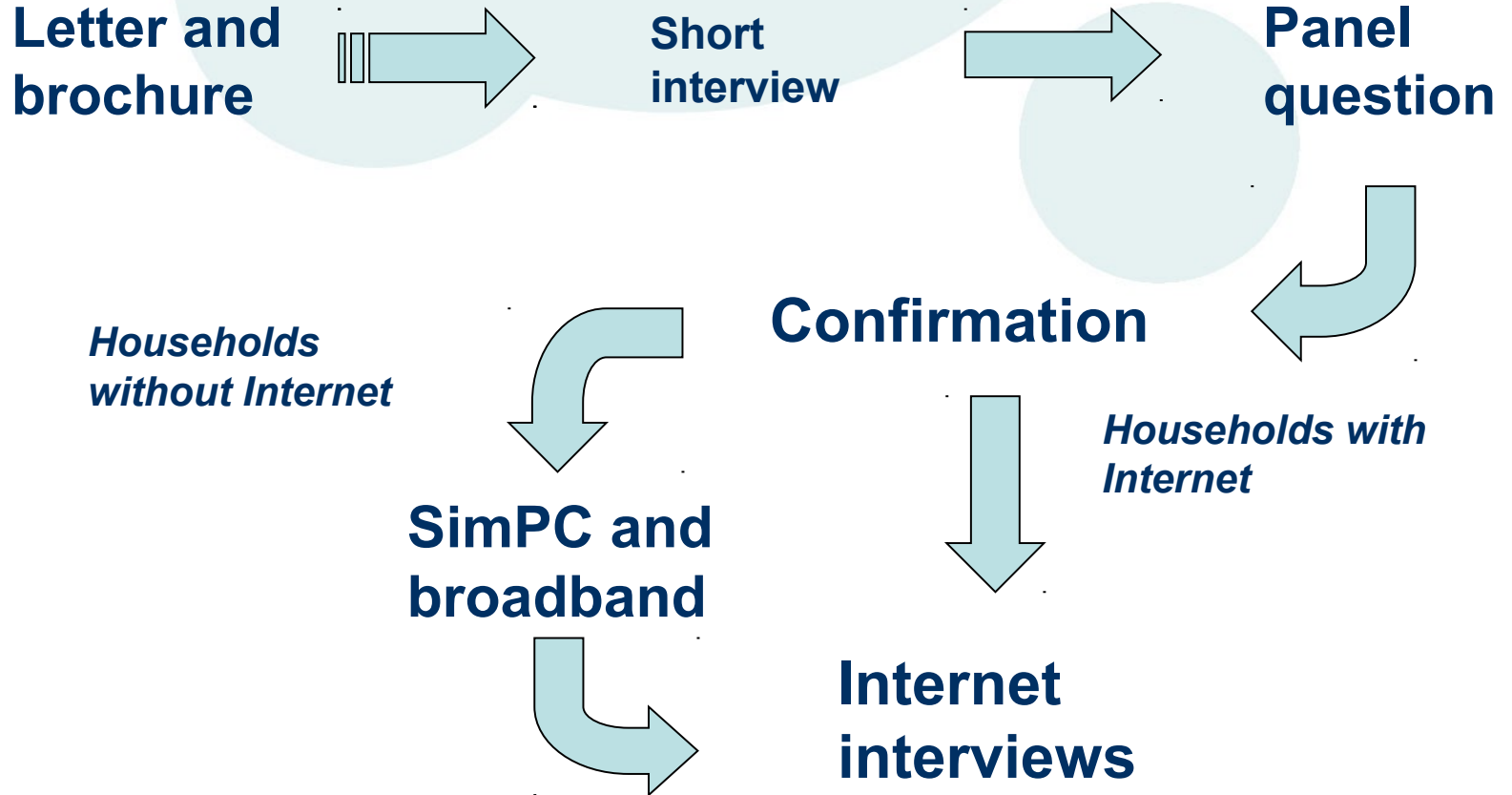Automatic maintenance, safety

Simple operation and readable screens

Installation and support
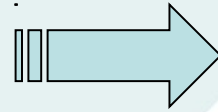
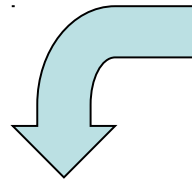# Recruitment of LISS panel

Recruitment

Letter and brochure → **Short interview** → **Panel question**

Households without Internet

Confirmation

Households with Internet

SimPC and broadband

Internet interviews

Response

Secondary response target: 60%

Letter and brochure → **Short interview** → **Panel question**

Primary response target: 80%

Confirmation

Households with Internet

SimPC and broadband
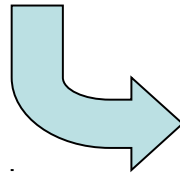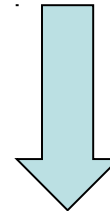
Internet interviews

Tertiary response target: 53%

Recruitment experiment

to optimize factors in the recruitment:
- contact mode
- incentive amount
- timing of the incentive
- content of the advance letter
- timing of the panel participation request

Scherpenzeel, A. and V. Toepoel (2012). "Recruiting a Probability Sample for an Online Panel: Effects of Contact Mode, Incentives, and Information," *Public Opinion Quarterly*, 76(3), pp 470-490.

Set up main recruitment

- Combination CATI – CAPI, follow up CAPI

- Prepaid 10 euro incentive

- Promised extra 10 euro incentive for starting

- Attention to design letter and brochure

Response in recruitment

Recruitment stage (households)	% of total gross sample
	LISS panel
Reached	90
Completed interview or central questions	75
Willing to participate in panel	63
Registered as panel member	48
Total gross sample*	9844

*excluding not usable addresses

LISS panel compared to population (2008)

Group	LISS Panel %	Population %	Bias
Age >=70	7	13	-6
Living alone	15	20	-5
Non-western immigrant	4	7	-3
Did not vote at election	13	20	-7
Voted SP at election	17	17	0
Voted CDA at election	25	26	-1
Has Internet access	93	85	+8

LISS panel compared to DPES

	LISS Panel Bias	DPES Bias
Group		
Age >=70	-6	1
Living alone	-5	-4
Non-western immigrant	-3	-2
Did not vote at election	-7	-13
Voted SP at election	0	1
Voted CDA at election	-1	1
Has Internet access	8	2

DPES = Dutch Parliamentary Electoral Studies
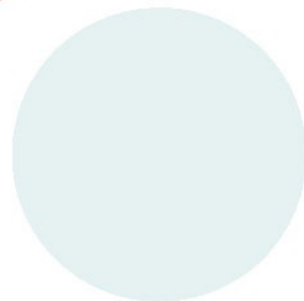
Non-response patterns

Similar to those of other leading scientific panels

Superior to commercial access and volunteer panels:

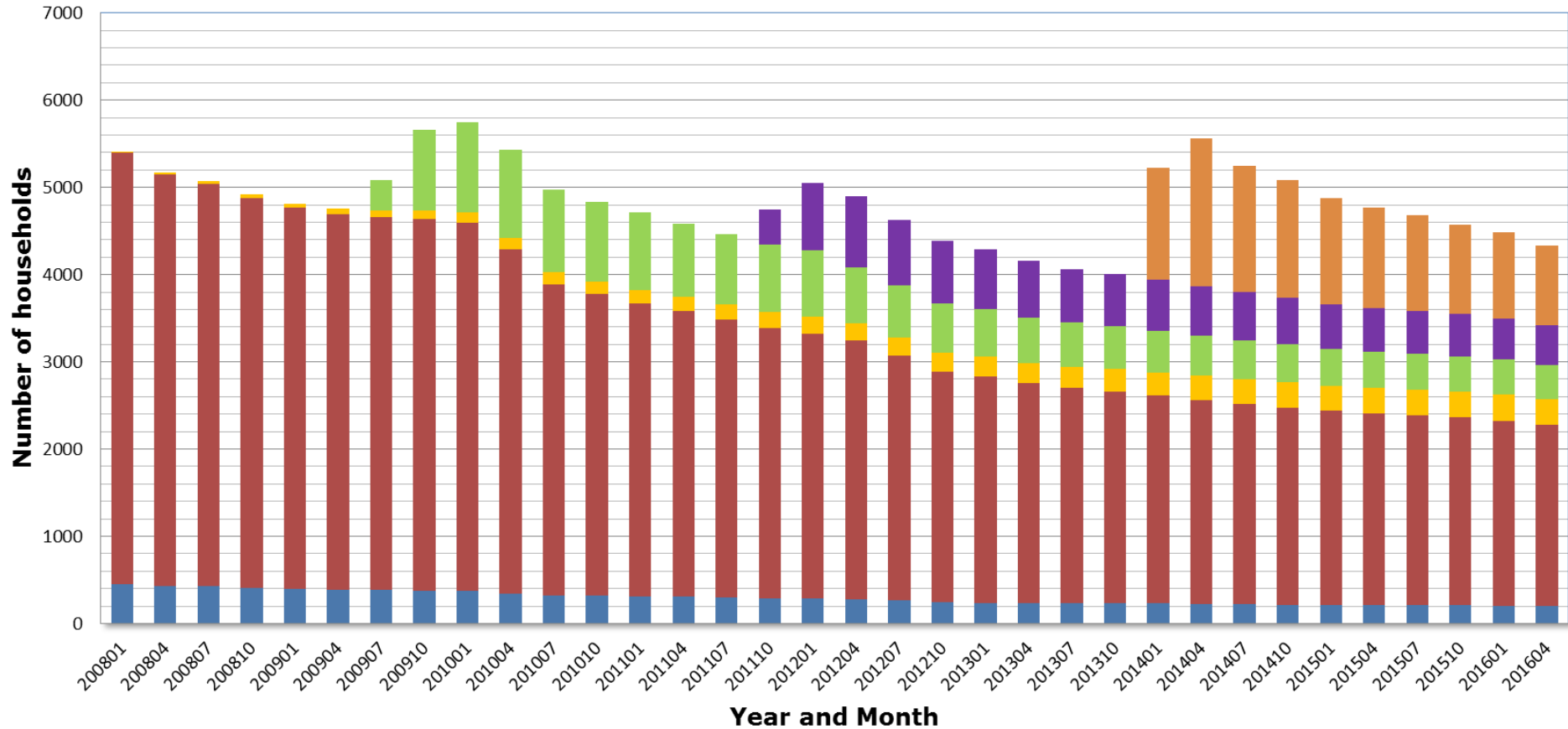- no coverage problems

- no self-selection

Attention for difficult groups

Correction by refreshment sample in 2009 (stratified), 2011 (random), 2013 (stratified) in close collaboration with Statistics Netherlands

Attrition LISS households, 2008 – 2016

Use of the LISS panel

Use of infrastructure

•Longitudinal core study (questions on health, work, income, education, ethnicity, political opinion, values, norms, and personality)

•Since 2007 more than 200 projects have been run with the LISS panel

More than 100 institutes worldwide have participated in the proposals (including all Dutch universities, and universities such as Harvard, Stanford, and Michigan)

Disciplines using facility

economics (health, behavioral, marketing, social), business, public administration and political science, psychology, epidemiology, survey statistics / methodology, criminology, decision theory, sociology, dietetics, linguistics, philosophy, demography, religion studies and theology, social geography and planning, communication science, humanities, cultural anthropology, mathematics, medicine, arts and architecture, law

Innovation in data collection

- Internet bathroom scales

- Smartphones (Time Use,

  with the Netherlands Institute
  for Social Research (SCP);
  Mobility,
  with Twente University)

- Accelerometers

Bathroom scale study (1)

- Wireless bathroom scales
- Uses radio signals through "bridge" and Internet, to send the data
- Measures weight and body fat
- Variability over time: more accurate and more frequent

Design study:

- Longitudinal study (approx. 3 years)
- 950 scales, in last year of study 300 new scales added
- ***Lend to household for at least 1 year***

Bathroom scale study (2)

First empirical analysis is based on almost 80,000 measurements collected in 2011

Subjective self-reports versus objective measurements?

Average self-reported weight is
0.9 kilograms **lower** than average actual weight for men and
0.7 kilograms **lower** for women

More results

Kooreman, P. and A. Scherpenzeel (2014). "High frequency body mass measurement, feedback, and health behaviors," *Economics & Human Biology*, 14, pp 141-153.

Highlights

•Weight is 0.2 kilograms lower on Fridays than on Mondays; BMI is 0.06 less and fat percentage is 0.03 lower on Fridays.

•The fat-based measure of obesity indicates a three times larger prevalence of obesity (53%) than the BMI-based measure (17%).

•A feedback that includes a recommended weight range increases the temporal variation in individual body weight by about 10%.
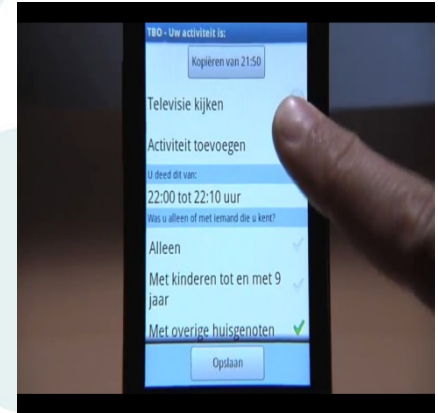
Time use project: app diary (1)

Time Use Application

Similarities to paper version
- 10 minutes time slots
- 4am to 4am next day
- first important activity, second activity
- with whom

Differences to paper version
- Closed answers: codes for activities
- Repeated activities can be copied from previous time slot
- Activities sleeping & working can be filled in for longer time periods

Time use project: app diary (2)

- Developed by CentERdata

- Can be used any time

- Notifications (reminders)

- Experience sampling: 3 popup questions on feelings, random moments
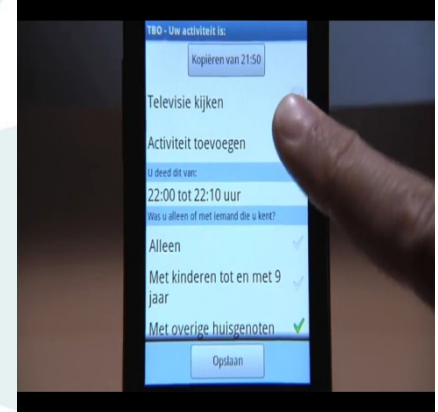
Design study

- In close collaboration with the Netherlands Institute for Social Research

- 12 months data collection

- 170 panel members per month, 2,000 total

- Panel member completes two days

- ***200 loan smartphones, lend for 7 days***

More information

Report: *Using smartphones in survey research: a multifunctional tool.* Available at www.scp.nl/smartphone

Fernee, H. and N. Sonck (2013). "Is everyone able to use a smartphone in survey research?" *Survey Practice*, 6(4).

Scherpenzeel, A. and H. Fernee (2013). "New and Emerging Methods: The smartphone in survey research: experiments for time use data." *The Survey Statistician*, 67, pp 19-25.

Mobility App

- Developed by Novay (The Netherlands)
- Uses GPS and Mobile Networks
- Algorithm: distance, mode (speed), time
- Webinterface: respondents check and adapt
- Privacy issue: Consent procedure

Design study

- 3 waves spread over 3 years
- 500 panel members per wave
- 4 - 6 weeks measurement per wave
- ***200 loan smartphones, lend for 4 weeks***

More information

Geurs, K.T. et al. (2015). "Automatic trip and mode detection with MoveSmarter: first results from the Dutch Mobile Mobility Panel," *Transportation Research Procedia*, 11, pp 247-262.

Accelerometer study (1)

Goal of study:

- More realistic and complete picture of physical activity when objective measures and self-reports are combined

- Relationship health & physical activity

- Compare with English Longitudinal Study of Aging (ELSA,UK) & American Life Panel (ALP, USA)

Accelerometer study (2)

Accelerometer:

- Developed by Geneactiv (UK)

- Measures:
  - acceleration X-Y-X axis
    - body temperature
    - light intensity

- Device is wearable as a watch, water-proof

Accelerometer study (3)

Pilot and main study:

- Pilot: 200 respondents, 100 devices,   7 weeks
  feasibility study

- Main study: 1,011 respondents
  300 devices
  13 weeks of data collection

  Respondents **worn device 8 days**, day and night

Accelerometer study (4)

Collected data:

Device: 60Hz, 8 days, 24/7

- ± 4 GB for each participant
- 1200 respondents ≈ 5 TB raw data

Next to accelerometer data, also other data collected: DRM & affect questionnaire, and sedentary & vignettes questionnaire

LISS Data Archive

- An innovative data archive is easily available through a web tool on a dedicated LISS website (http://www.lissdata.nl)

- Researchers worldwide have accessed the LISS Data Archive for use in scientific, policy, and societal studies

- Currently: more than **1,800** registered users and more than **450** publications based on LISS data

In its first phase, MESS has generated a clear return on investment

- An ultra-modern, efficient research infrastructure is now solidly in place

- The LISS panel has collected more than eight years of rich and innovative data, using state-of-the-art methods

- Researchers worldwide have accessed this data for use in scientific, policy, and societal studies

Even higher return on investment…?

- The return on investment will certainly grow over time, with an exponentially increasing number of publications (e.g. because of secondary analyses)

But also:

- International collaboration:
  France: ELIPSS
  Germany: GIP and GESIS Panel
  Iceland: SSRI Online Panel
  Norway: Norwegian Citizen Panel
  Sweden: Swedish Citizen Panel
  USA: Understanding America Study

  → This may lead to a wealth of international comparisons and new global data networks