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Smart Survey Implementation

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

3rd Informational meeting

Friday, 2024-07-05

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How does the general population think about smart features?

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Mateja Zgonec (SURIS, SI)

And many others!

A survey on perceptions about smart features

Why a survey?

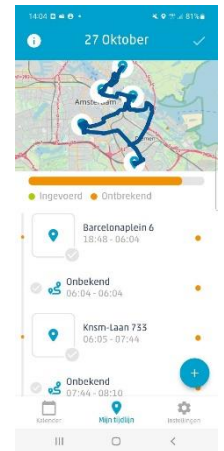
- Willingness to go smart is a key requisite and a methodological challenge
- Country differences may affect comparability

Ambition:

- Find clues for 'push-to-smart' strategies (materials, interviewer tactics)
- Provide background to legal/ethical boards on GDPR decisions

Survey design: A two-step survey including a (self-administrated) **paper questionnaire** (NWM-G) on digital skills, perceptions towards smart data collection and hypothetical willingness **followed by an online 'smart' survey** (NWM-S) **including four smart tasks**

Fielded in Italy, the Netherlands and Slovenia in 2023/2024



The surveys in a glance

Table 1. Survey design of the Perception survey (NWM) in Italy, Netherland, Slovenia

	IT	NL	SI
Sample size	4000	4000	2000
Sampling design	Two-stage SRS from population register (municipality is PSU)	SRS from population register	Stratified two-stage sample from population register 18-74
Contact modes	Advance letter F2F interviewer	Invitation letter	Invitation letter F2F interviewer
Incentive strategy	None	5 Euro unconditional Lottery 400 Euro for NWMS-S	The first 1000 respondents will receive a gift card. Conditional gift card (5 Euro) for general perception survey.
Reminder strategy	Interviewer call or visit (return after 2 weeks to collect)	Mailed letter after two weeks based on online response Mailed letter after five weeks based on paper response	Mailed letter after three weeks based on paper response (including announcement of follow up with field interviewers) Thank you mailed letter and a reminder in one (thank you note on completed paper questionnaire or interview and a reminder on online response after few weeks after completed PAP/CAPI)
NWMS-G administration	Paper (self administered)	Paper (self administered)	PAP, CAPI
NWMS-S software	Limesurvey with plug-in	Blaise with plug-in	Blaise with plug-in for web, Blaise for CAPI
Fieldwork period	Jan 15 – Feb 30 field	Sept 15 – Nov 15	Sept 25 – Dec 12

Table 2. Overview of persons that completed NWM-G, partially completed NWM-G, completed NWM-S and broke-off in NWM-S; nonresponse

IT	NWM-G complete	NWM-G incomplete	NWM-G Nonresponse	Total
NWM-S complete	23%	0	1%	23%
NWM-S Break-off	2%	0	0%	2%
NWM-S nonresponse	43%	1	31%	75%
Total	68%	1	31%	3667
NL	NWM-G complete	NWM-G incomplete	NWM-G Nonresponse	Total
NWM-S complete	13%	0%	5%	18%
NWM-S Break-off	1%	0%	2%	3%
NWM-S nonresponse	9%	2%	67%	78%
Total	23%	2%	75%	4000
SI	NWM-G complete	NWM-G incomplete	NWM-G Nonresponse	Total
NWM-S complete	16%	NA	1%	17%
NWM-S Break-off	1%	NA	0%	2%
NWM-S nonresponse	33%	NA	49%	82%
Total	50%	NA	50%	2000

- Self administered paper questionnaire (NWM-G) and online smart questionnaire (NWM-S) deal with the same questions in each country
- Participation rate of the NWM-G survey varied across the countries as it reflects different choices in the survey designs
- Participation rate in the smart survey was very similar (around 20%)

Smart features and smart tasks

A smart feature is a data collection action through ≥ 1 functions of a smart device owned by, or provided to, a respondent.

Smart data are data collected through one or more smart features

A smart task is a processing action applied to smart data (automated, semi-automated or manual)

A smart service is a combined and implemented series of smart tasks

Tasks in **lightblue** are in hypothetical setting (NWM-G) and **darkblue** also in real setting (NWM-S)

	Smart feature criteria				Output gap
	Data existent	Measurement	Accuracy gap	In-device	
Photos of housing conditions (ENERGY, SILC)	NO	Internal sensor	Respondent	YES	Q&A smart
Data donation of energy meter (ENERGY)	YES	External sensor	Post-survey	YES	Q&A smart
Indoor air quality system by NSI (ENERGY, SILC)	NO	External sensor	Negligible	NO	Q&A smart
Step count data donation (EHIS)	YES	External sensor	Negligible	YES	Q&A
Physical activity tracker by NSI (EHIS)	NO	External sensor	Post-survey	NO	Q&A
Scans of receipts (HBS)	NO	Internal sensor	Post-survey	YES	Q&A
Upload of e-receipts (HBS)	YES	Internal sensor	Negligible	NO	Q&A
Location tracking (TUS, Passenger Mobility)	NO	Internal sensor	Respondent	YES	Q&A smart
Web tracking (ICT)	NO	Internal sensor	Post-survey	YES	Q&A smart
Product/service search (HBS)	NO	Q&A	Post-survey	YES	Negligible
Time use activity search (TUS)	NO	Q&A	Post-survey	YES	Negligible

Hypothetical participation in smart tasks

Would you participate in a ISTAT/CBS/SURS survey which ask you to...?

SMART TASK	IT		NL		SL	
	Yes	Maybe	Yes	Maybe	Yes	Maybe
➔ Share location	9%	16%	25%	25%	21%	23%
Share pictures of your house	7%	9%	12%	18%	7%	13%
➔ Share data on energy use	24%	18%	41%	25%	18%	23%
Use an air quality monitor	29%	16%	47%	20%	33%	22%
➔ Give your step counts	21%	14%	39%	23%	30%	22%
Wear an activity tracker from NSI	12%	14%	20%	20%	19%	19%
➔ Take pictures/upload receipts	8%	13%	14%	19%	9%	14%

- NL respondents are the most willing in all task; SL willingness is usually between NL and IT
- **sharing data on 'use of energy' and 'air quality monitoring'** reach the highest majority of respondents who would do it; highest in NL (66%; 67%), following SL (41% and 55%) and IT (42%; 45%)
- **'Sharing step counts'** turns out the willingness of one third of respondents in IT, much higher in SL (52%) and NL (62%); willingness in **wearing tracker activity** is quite aligned between countries
- **'Taking photos'**, especially photos of the house, is the task that respondents are less willing to do it
- **'Share location'** turns out the lower availability in IT in comparison to NL and SL

Hypothetical versus real willingness

Respondents were asked 4 smart tasks in the online 'smart' questionnaire that matched to 4 of the hypothetical tasks in the paper questionnaire

NWM-G hypothetical	NWM-S observed willingness								
	Shares			Is not able to			Not share		
	IT	NL	SI	IT	NL	SI	IT	NL	SI
Share location									
Yes	63%	62%	49%	23%	30%	23%	14%	9%	28%
Maybe	39%	56%	43%	36%	19%	21%	26%	24%	36%
No	17%	28%	20%	63%	22%	12%	20%	51%	68%
Don't know	32%	47%	9%	46%	18%	27%	23%	35%	64%
Share step count									
Yes	47%	66%	84%	42%	33%	14%	11%	1%	2%
Maybe	42%	58%	85%	55%	40%	15%	3%	2%	0%
No	20%	24%	80%	68%	75%	4%	13%	1%	16%
Don't know	21%	29%	100%	67%	71%	0%	12%	0%	0%
Share receipt									
Yes	18%	48%	22%	63%	47%	66%	19%	5%	12%
Maybe	18%	32%	20%	66%	56%	67%	17%	12%	13%
No	7%	16%	13%	46%	48%	43%	47%	36%	44%
Don't know	9%	24%	24%	43%	59%	53%	47%	18%	24%
Share meter reading									
Yes	15%	63%	8%	16%	8%	42%	69%	29%	50%
Maybe	5%	42%	12%	15%	10%	35%	81%	48%	54%
No	5%	8%	4%	9%	12%	36%	87%	80%	60%
Don't know	2%	22%	0%	10%	17%	30%	88%	61%	70%

- There is a **positive relation** between hypothetical and actual willingness, those who consented hypothetically turn out an higher rate of really sharing. For NL the relation it is true in all tasks. However, **the strength** of the relation **varies between countries and per smart task**
- Only **sharing location** has a **clear pattern** for all countries, though it has unrealistic high rate of 'not able' that could hide refusals of respondents in doing the task
- **Share receipts and meters reading** shows **different patterns** between countries
 - while most of NL willing to do it really **share receipts**, IT and SL more often are not able to do it (less prevalent digital receipts?)
 - while most of NL willing to do it really **share meter reading photos**, IT and SL more often do not share (meter reading not comfortable; too much effort or unclear relevance)

Smart task actually performed

Number of smart tasks performed by the respondents (maximum of four)

Number of tasks	IT	NL	SI
0	49.4%	11.7%	35.5%
1	32.2%	28.0%	34.0%
2	12.6%	29.7%	22.0%
3	5.4%	22.7%	6.3%
4	0.4%	7.7%	2.1%

Summary of tasks performed (from table annotations):

IT (tasks 2-4): 18,4	NL (tasks 2-4): 60,1	SI (tasks 2-4): 30,4
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- In IT half of respondents who went into the online smart survey didn't perform any tasks, compared to one third of SI and a share much lower in NL
- More similar is the share of those who made one task in all countries
- The majority of respondents to the online survey did 2 or more tasks in NL; the share is only one third in SL and just a fifth in IT

Perceptions

In general, how concerned are you about **your data being stolen and misused** by others?

	Did not go smart			Did go smart		
	IT	NL	SI	IT	NL	SI
Not	12%	25%	21%	16%	31%	26%
Somewhat	26%	34%	31%	33%	48%	37%
Quite	29%	26%	30%	29%	17%	26%
Very	33%	16%	17%	22%	5%	12%

When you are invited to participate in a study that collects data through smart devices, how important would it be for you **to be informed about what data will be collected**?

	Did not go smart			Did go smart		
	IT	NL	SI	IT	NL	SI
Not	8%	7%	6%	5%	1%	2%
Somewhat	8%	8%	7%	8%	9%	10%
Quite	22%	29%	37%	24%	36%	36%
Very	48%	55%	40%	59%	55%	51%
DK	18%		9%	4%		2%

How important would it be for you **to be able to control what data** will be collected?

	Did go smart			Did not go smart		
	IT	NL	SI	IT	NL	SI
Not	8%	8%	8%	6%	4%	3%
Somewhat	8%	8%	7%	10%	11%	10%
Quite	22%	33%	38%	26%	45%	46%
Very	41%	43%	36%	51%	39%	40%
DK	21%	9%	11%	7%	1%	2%

Factors influencing online smart participation and performing tasks

Background characteristics like age, educational level, country of origin and household size turn out to be factors influencing the propensity to the online smart response in all countries, though with different strength

In Italy, the propensity to the **participation to the online smart** survey increase with the **educational level** and respondents turn out to be:

- more reluctant if they are **aged >65 years**
- more likely to be **Italians** (OR= 3.77) than foreigner
- more likely to live in a municipality with **less than 50,000 inhabitants** (OR = 1.52);
- more likely to live in the **northern regions** of the country (OR = 1.29);
- more likely to live in a household with **at least two components** and the propensity increases as the size of the household increases (OR = 1.41 and 2.14 for households with two to three components and with more than three components, respectively)

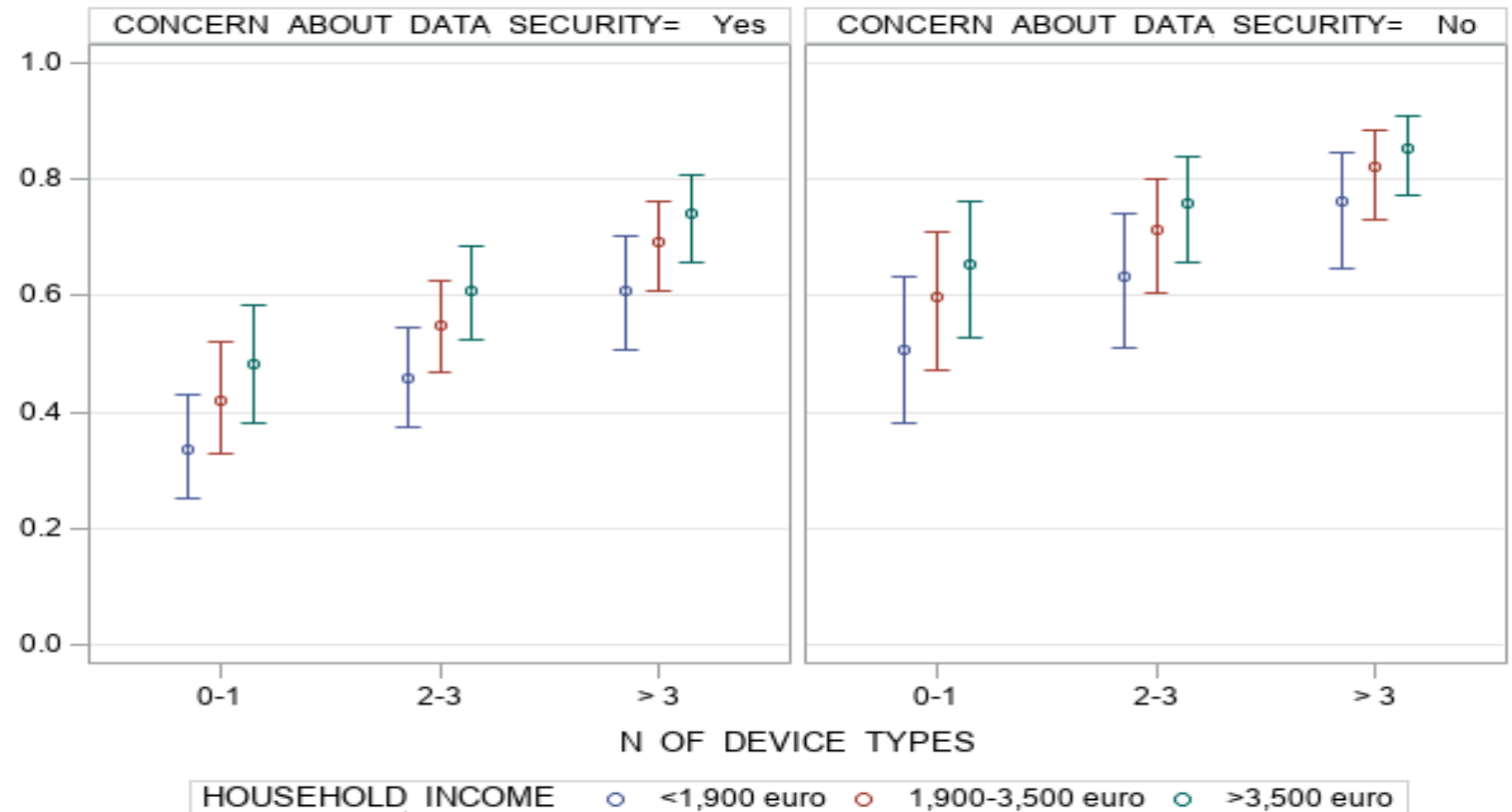
In contrast, background factors turn out to be weak predictors for task performance

Probabilities of performing at least one smart tasks

Model-predicted probabilities for “At least one smart task performed” with 95% confidence intervals, by Concern about data security, Number of device types and Household income () (Italy)*

The Italian respondents using **more than 3 types of devices** and with a **household income above 3,500 euro** are more likely to perform at least one smart task

Probability is higher for those who are not concerned that their data may be stolen or misused



(*) Model-predicted probabilities are calculated at *Geographical area* = “North”, *Nationality* = “Italian”.

Conclusions and next steps

Conclusions:

- While participation in the general survey varied across the three countries, the participation rate in the smart survey was very similar (around 20%)
- Both hypothetical and actual willingness vary across the countries and are not always consistent (NB: Survey was experimental by nature and surveys design not fully comparable)
- Willingness to do smart tasks depends on the context and logic of the request
- Strongest hesitations come from concerns about data security, and, consequently, privacy

Next steps:

- ✓ Elaborate analyses for open-ended questions
- ✓ Review and revise interviewer tactics, recruitment materials and in-survey help options for
 - Feelings of incompetence given digital skills
 - Concerns/uncertainty about data security/protection
 - Life cycle of smart data within the NSI and beyond
- ✓ Inform legal officers



Q&A

Thank You * Thank You
THANKS !!! * thank *
Thanks Thank You

thanks thank you *

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