ESSnet Smart Surveys

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Link to our CROS website

Workpackage 1

Coordination and Communication

Deliverable D1.5: Technical Report
Action plan and roadmap for effective communication of using Trusted Smart Surveys for official statistics

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1. Summary

This technical report comprises an action plan and a roadmap for effective communication of using trusted smart surveys for official statistics.

In addition, the report provides a compilation of meetings and communication activities that already have taken place. This aims to provide an overview of existing communication materials (abstracts, presentations etc.) for the purpose of reuse.

2. Introduction

2.1. Smart Surveys in the ESS

Several National Statistical Institutes, within and outside the European Statistical System (ESS), have been modernising their data collection by exploiting the enhanced possibilities offered by smart surveys. The term "smart surveys" has been widely used to refer to data collection based on smart personal devices. Typically, smart surveys involve (continuous, low-intensity) interaction with the respondent and with her personal device(s). They combine (inter)active data provided explicitly by the respondent (such as responses to queries, or shared images) together with passive data collected in the background by sensors (e.g. accelerometer, GPS) of the same device or by other devices within the personal sphere of the respondent.
The term "trusted smart surveys" refers to an augmentation of the smart survey concept by technological solutions aimed at increasing the degree of trustworthiness, hence promoting public acceptance and participation. Constituent elements of a trusted smart survey are the strong protection of personal data based on privacy-preserving computation solutions, full transparency and auditability of processing algorithms. [1,2]
The development of trusted smart surveys involves features that are complex to design and implement, and this adds to the motivation to tackle the challenge at the European level. The idea is to provide ESS members with capabilities to instantiate and run new surveys, fully configurable to meet the specific needs of different surveys and national needs. On the one hand developments in the use of innovative tools for data collections in one country can benefit when cross-fertilised

[1] F. Ricciato, A. Wirthmann, M. Hahn (2020). Trusted Smart Statistics: How new data will change official statistics. Cambridge University Press, Data & Policy Volume 2, 2020, e7 https://doi.org/10.1017/dap.2020.7
[2] F. Ricciato, K. Giannakouris, A. Wirthmann, M. Hahn, Trusted Smart Surveys: a possible application of Privacy Enhancing Technologies in Official Statistics, 2020 Societa' Italiana di Statistica (SIS 2020)

with architectures, experiences and developments of smart surveys from other countries. On the other hand duplication of development costs should be avoided.

For this reason Eurostat - in collaboration with a consortium of twelve NSIs - has launched a European project (ESSnet) on Smart Surveys in 2020.

The ESSnet aims at taking a first step towards the future development of a European platform for trusted smart surveys. It covers the pre-development stage: collection of requirements, identification of design principles, development of a conceptual framework and a reference architecture, and formulation of specifications. In doing so, the project reuses, to the greatest extent possible, the tools and experience gained in previous European activities, most prominently related to innovative activities concerning HETUS[3] and HBS[4].

2.2. Communication objectives and target audience

The outcome of the ESSnet should not only be visible at the level of the 12 participating NSIs, but also at the level of the ESS as a whole and at other organisations or individuals interested in official statistics and survey methodology, the media and the general public. Therefore it is very important to disseminate and promote them extensively. This deliverable will show what which communication measures have already been taken in this regard and which are still planned. This aims to provide an overview of existing communication materials (abstracts, presentations etc.) for the purpose of reuse. The target audience for communicating the ESSnet Smart Surveys project includes:

a) 12 partners (NSIs) participating in the ESSnet
b) Non-participating ESS NSIs
c) Other organisations or individuals interested in official statistics and survey methodology, the media and the general public

However, this deliverable is intended to go beyond this and show what future communication concepts should have in mind when it comes to using Smart Surveys to obtain data from a broader public.
For this reason this technical report comprises an action plan and a roadmap for effective communication.

[3] HETUS = Harmonised European Time Use Survey
[4] Household Budget Survey

3. Communication Essnet Smart Survey

3.1. Communication within the project

3.1.1. Organisational meetings

Within the project different regular meetings have been established to coordinate the project and to inform participating NSIs.
Besides the **Coordination Group (CG)** (consisting of the three work package leaders, the sub-work package leader of work package 2.2 and the project manager from Eurostat) for systematically managing the project and for facilitating the communication between the work packages (WP henceforth) and Eurostat, a **Content Steering Group (CSG)** was established. In the course of the project, the need for meetings, which differ from the CG meeting in that they are more content-oriented and issue-specific, became evident. Related to that, it also became obvious that the link and exchange between work package 2 (WP2) and work package 3 (WP3) needed to be strengthened. For this reason the CSG had monthly meetings from October 2020 on.

For the purpose of exchanging subject-specific project results between the WPs (especially between WP2 and WP3), the CSG also appointed **topic-specific working groups (WG)** on (a) Legal-ethical issues, (b) technical issues including front-end configuration, metadata and general architecture and (c) Methodological issues including incentives, active-passive trade-off, machine learning in December 2020. Besides these top level meetings there were a lot of meetings within the WPs and the single thematic groups.

Concerning irregular meetings there have been also a few with all participating NSIs invited: beginning with the kick off meeting (16./17. January 2020 in Wiesbaden) over 2 intermediary meetings (6./7. October 2020 and 29./30. April 2021; both virtually) to the final conference (18./19. May 2022 in Vienna).

3.1.2. Internet platform

Apart from meetings there has been a confluence webpage for internal communication and information.

https://webgate.ec.europa.eu/fpfis/wikis/pages/viewpage.action?spaceKey=EstatBigData&title=ESSnet+Smart+Surveys+2020-2021

Originally it was planned to use the page for internal and external communication. For this reason the page is divided into a public and a restricted area:

Public area: The area is open for viewing to all but with managed editor rights reserved for project participants; it serves both as a collaboration platform for project members, and as an extranet for disseminating progress and results.

Restricted area: This area is restricted to project participants. The restricted area is used for confidential information such as personal or financial information.

Due to the increasing login requirements during the project (two-factor identification) it was decided to use additionally CROS for the external communication (see chapter 4.1).

Summing up internal communication it has become apparent that, in addition to organizational communication and the communication within the WPs, a regular exchange of content on higher level is also needed to coordinate the two central work packages with each other.

Furthermore, the meetings with all participating 12 NSIs invited were important to inform those NSIs that were only involved in some subprojects about the progress of the whole project. Especially because of the difficult conditions (Covid 19 and the subcontracting issues) which lead to some changes to the originally planned program (partly no field phase, extension of the project) these broader meetings were important even if they were only possible virtually.

With the confluence page all NSIs had the chance to get detailed information every time they wanted to.

3.2. Communication outside the project

As mentioned above it is also important to disseminate results outside the project to non-participating NSIs, the scientific community, other organisations or individuals interested in official statistics and survey methodology, the media and the general public.

3.2.1. CROS platform

A first central element in doing this, is the CROS webpage which can be accessed by everyone.

In the beginning of the project, the CROS page only consisted of a short introductory text about smart surveys and the ESSnet. During the project, it was decided to use

mainly CROS for the external communication, as it is freely accessible without a login.

All deliverables, presentations etc. are therefore publicly available on the following CROS page:

https://ec.europa.eu/eurostat/cros/content/essnet-smart-surveys_en

Therefore, this platform is effective way to provide detailed information. It can be the central communication element with user specific information, e.g. for scientists, for media, for a first rough introduction.

You bring all your information to this platform, provide a good user-friendly structure, and refer in every presentation, in every article, in every flyer to this platform with its comprehensive information.

3.2.2. Presentations at conferences

Conferences, on various statistical topics and domains, present an important dissemination channel for ESSnet outputs. By presenting at conferences different audiences could be reached, for example the ESS, the wider community of official statistics and the research community. For this reason several presentations at conferences have been foreseen in the grant agreement.

Unfortunately due to the spread of the Corona pandemic some of the conferences in 2020 and 2021 were cancelled (e.g. Q2020). Most of them, however were held online (e.g. BigSurv2020, NTTS2021, ISI2021).
An advantage of virtual conferences is that some are organised with video recordings of the presentation. For communicating and disseminating project's results a very welcome by-product is that - in addition to posters and presentation slides - also the oral presentation can be provided easily and the recordings can reach a much wider audience than originally thought and possible at the conference.
In 2022 some conferences are in person and the project will be presented there. Even though the project ends in June 2022, it is important to present the results beyond that date.

The table shows all conferences where the project was presented or where it is planned to present the project. Presentations range from single poster presentation with a project overview, to whole sessions with three presentations.

Conference	Date		Presentation	Available resource	Link to presentation
BigSurv	Nov./ Dec. 2020	virtual	Poster Presentation	Record of presentation	https://www.bigsurv20.org/conf20/program/?sess=33#185
NTTS – New Techniques and Technologies for Statistics	March 2021	virtual	special Session with 3 presentations	Record of presentations	https://coms.events/NTTS2021/data/sessions/en/session_12.html
14. Wissenschaftliche Tagung "Smart Surveys – Neue Technologien bei Befragungen"	June 2021	virtual	2 presentations	Record of presentations	https://www.destatis.de/DE/Ueber-uns/Kolloquien-Tagungen/Veranstaltungen/14-wissenschaftliche-tagung/wiss-tagung-programm.html
ISI World Statistics Congress	July 2021	virtual	Presentation	Slides and abstract	https://ec.europa.eu/eurostat/cros/content/isi-2021_en
Statistische Woche	Sept. 2021	virtual	Presentation	Slides and abstract	
DAGStat	March 2022	Hamburg	Presentation	Slides and abstract	https://ec.europa.eu/eurostat/cros/content/dagstat-2021_en
IAOS	April 2022	Krakow	special Session with 3 presentations		
Q	June 2022	Vilnius	special Session with 3 presentations		
NTTS	March 2023	Brussels			
ISI	July 2023	Ottawa			

3.2.3. Planned Publications

In addition to conferences publications in scientific journals are one of the main vehicles to disseminate and discuss new ideas and results within the scientific community. For the ESSnet Smart survey project the following publications are planned.

Statistical Journal of the IAOS

It is planned to publish a shared paper in the Statistical Journal of the IAOS (https://officialstatistics.com/aims-scope), which is the flagship journal of the International Association for Official Statistics (IAOS). The main aim of the journal is to support the IAOS mission by publishing articles to promote the understanding and advancement of official statistics and to foster the development of effective and efficient official statistical services on a global basis. The journal has an Editor-in-Chief who is responsible for ensuring that the journal focuses on current and emerging issues and challenges related to the management, production and use of official statistics and related public policy matters.

It has not yet been decided which focus the article should have. One option is a paper which gives an outlook on further development. The paper could also rely on what was discussed on conferences.

AStA Wirtschafts- und Sozialstatistisches Archiv

The “Wirtschafts- und Sozialstatistische Archiv” (https://dstatg.de/publikationen/asta-wirtschafts-und-ssozialstatistisches-archiv) sees itself as the central German-language organ for the publication of economic and social statistical works. These deal with substantial questions of economics and social sciences with a methodology that combines concepts of classical economic statistics with modern mathematically influenced statistical approaches.

Destatis plans to publish a general paper describing the possibilitys and challenges of using smart surveys in official statistics. The ESSnet Smart Surveys will be mentioned as a case study.

Other publications

CBS plans to publish analyses done under WP2.1 (HBS). It has not yet been decided in which journals.

In addition CBS prepared together with Utrecht University a more general paper on smart survey methodology in which HBS and physical activity are two of the three case studies.

3.2.4. Presentations in Eurostat Groups

Directors' groups and the working groups, taskforces and other bodies associated to them are important groups to discuss users' needs, feasibility, priorities, and resources with respect to innovation. Therefore, it goes without saying that it is very important to keep them informed about the progress and the outcomes of the ESSnet Smart Surveys.

Task Force Trusted Smart Statistics (TF TSS)

On the 19 October 2021 the meeting (video conference) of the Trusted Smart Statistics Task Force was dedicated to Trusted Smart Surveys. The members of the ESSnet Smart Surveys project presented to the Task Force the components that are currently developed within the ESSnet with respect to existing tools and in particular the PoCs and the various scenarios of the future architecture.
The scope was to inform the TF TSS and to start the discussion on the long-term goals and future developments of Trusted Smart Surveys in the ESS.
The overall comments to the progress and work in the ESSnet were very positive. In principle the TF suggested the following:

- Before scaling up developments
    - Explore further the possibilities given by the smart technologies
    - Develop robust methodologies, mature implementations
    - Consolidate the requirements for using individual components (e.g. incentives, privacy, quality, scanning receipts, geo-tracking, etc.)
    - Develop PoC with respect to generic/common issues that were addressed by the pilots (e.g. privacy)
- The issue of changing NSIs working methods was raised within the framework of developing an adequate architecture
- Pushing innovation into production, developing adequate capabilities, changing culture …
- Move ahead with the innovation agenda in smart surveys, improve effectiveness and efficiency
- Though premature the deployment of a platform invest in common developments

Board of directors of social statistics (towards the end of the year 2022)

Since the pilots conducted in WP2 are mainly associated to topics from the social statistics it would be beneficial to present the results to the board of directors for social statistics. In doing so they should be informed about possibilities of further development and could possibly find synergies.

DIME steering group, October 2022

The DIME (directors of methodology) and the ITDG are two separate DGs working and meeting jointly on strategic issues of common interest, including Trusted Smart Statistics and innovation in official statistics. The DIME/ITDG Steering Group is a subgroup of the DIME/ITDG and its main role is to prepare the work of the joint plenary meetings.

A point in the agenda of the October 2022 DIME steering group has been proposed (e.g. presentation by the coordinator/consortium) by Eurostat to inform these DGs about the results of the project for any further strategic planning.

Working group methodology

Working Groups deal with specific thematic areas, provide input to the Directors Group(s) and are in charge of the operational implementation of the strategic orientations identified and planned by the Directors Group(s). The role of the Working Groups is to consolidate and validate the work performed at technical level on specific thematic issues by dedicated operational subgroups (expert groups, task forces). Working Groups provide opinions and propose solutions on the subjects under their remit in view of the elaboration and presentation of proposals for the endorsement by the DIME/ITDG.

For this reason the outcomes of the ESSnet Smart Survyes should not only be presented to the DIME steering group, but also in the working group methodology.

3.2.5. Final Conference 2022

The final conference is planned for 18 – 19 May 2022 in Vienna, Austria.

It is planned to start the conference program with a review of the project given by Eurostat and Destatis. Also the goals and results of WP2 and WP3 will be presented at the first day of the conference. To strengthen the bond between the participants and to encourage an informal exchange a conference dinner in a typical Austrian

wine tavern will be organized (at own expenses). The focus of the second day is on discussion. Break-out groups should discuss how Smart Surveys should be further developed in the future in the ESS. Additionally the results of the legal working group will be presented.

3.2.6. ESTP course

During the project the idea came up to give an ESTP course in context of Smart Surveys. The course could include concepts, legal considerations and practical implementations of smart surveys. Goal of this course should not be to present the results and work of the ESSnet as such. But it seems to be beneficial to rely on these practical examples the ESSnet focused on - like the apps and experiments made with HBS and TUS and also concerning measuring physical activity and indoor air quality – and to communicate the experiences made throughout the practical implementation.
So far these are only considerations, and an exact course plan still has to be worked out.

4. ROAD MAP

4.1. Communication with NSIs scientific society

Before smart survey technologies (in a sense of automatically usage of sensor data) can be used intensively in official statistics surveys a lot of development and improvement has to be done. Especially in this time of development an exchange with NSIs and scientific society is important.
In the following we would like to share some thoughts about communicating with these groups.

Smart Surveys use different technologies. The progress will therefore depend on the maturity of technologies to be used. For the further communication these technologies should be identified, their function should be described and their use for the smart survey technologies. With this process dependencies and risks could be pointed out more explicitly e.g. for stakeholders. Within scientists the use of these technologies can be discussed.

Moreover, during the time technologies being developed the provision of mock-ups, showcases and prototypes would be a good way to inform stakeholders, scientific society, maybe also interested media about what will be developed. They can not only serve internal conceptional and test work but also prepare interested persons

about what will come in the nearer future. This can be important aspect for building support and trust.

Apart from that, the paths taken so far should be maintained. Presentations at conferences, exchange of information via central project platforms, publication of articles in scientific journals, exchange with European committees, consultation of scientific advisors.

4.2. Communication with citizens and media

4.2.1. Challenges in communication

In times when it is possible for the first time to collect a lot of data technically very easily through new devices (either self-developed or those that are already widespread in society such as smartphones or fitness trackers), it is only logical that official statistics also wants to tap into these sources through new developments and renew its own processes, e.g. through smart surveys.
However, some aspects have to be taken into account, especially with regard to communication:

More difficult control over collected data

Unlike in classic surveys, in which it is clear to respondents question by question what information is being asked for and what information they are thus revealing, in smart surveys it is not directly clear what data is being collected and processed by the sensors on the smart devices. Of course, participants in such surveys need to be informed about what data is being collected. However, simply informing them about this will probably not be sufficient. It is much more likely that it will have to be explained (at least on request) why the data is being collected and what is being done with it.
In addition, smartphones in particular contain a large amount of sensitive data. Participants agree that certain (possibly sensitive) data is collected from their devices. Ultimately, however, they cannot control this. They must therefore trust that the installed apps actually only collect the data they claim to and which respondents have agreed to share.
Furthermore, respondents no longer have full control over what official statistics learn about them.
What is meant by this is that the moment they agree, they agree to provide the relevant data. However, they have much less influence on this data than in a classic questionnaire in which they actively answer each individual question and can thus influence the data very strongly, e.g. also through false statements. With automatically transmitted data (after one-time consent) this is no longer the case. Potentially inconvenient information that respondents would not have provided or

would have provided incorrectly in a questionnaire can thus no longer be withheld.
The first communicative challenge is therefore to convince respondents that data collection in this form is necessary and that only the data announced will really be collected.

Trust in the processing of the data

Smart surveys collect a lot of data that is, at least potentially, very sensitive. For example, if data is collected from fitness trackers, it can in principle be used to make much more far-reaching analyses than simply answering a question about a respondent's fitness status. Even if the tendency is to take advantage of these greater possibilities for analysis, official statistics will not exploit the full potential. However, participants must be made to believe this. From the moment they agree, they provide their data and must ultimately trust that these data will really only be used for the purposes as specified and not, for example, to control, monitor, resell or otherwise use them against them.
A second major communication challenge, then, will be to build trust that data will be handled in a restrictive and sensitive manner.

Trust in secure systems

Another obvious, and very important, aspect is that citizens must be able to completely trust the applications they use, even in terms of data security. The systems must transmit data securely and must not provide attackers (such as hackers) with any kind of attack surface. This is expected of stately systems in particular, also because such surveys are centrally organized and systematic.
A third challenge is to convince participants of the security of the systems in use.

4.2.2. Action plan to address the challenges

The communication challenges that have just been identified cannot be overcome by well thought-out and beautifully designed communication concepts and advertising flyers alone. To really convince citizens, you have to be able to deliver arguments and not just phrases. In this context, providing arguments means being up to date with the latest technology and incorporating new findings into the design of the systems. It is therefore extremely important for the successful use of Smart Surveys to follow current research in various fields:

In order to convince citizens of the necessity of the research plan, it can be presented to them. Communication channels that directly address the participants are equally important here: traditional media as well as social media channels should be considered. At best, a broader knowledge and understanding can be established among the general population. After all, we have recently experienced with the Corona Warn apps that the population can be very critical of government applications.

Thinking a little further, one can also imagine involving citizens in the development of research questions that could be answered with this data, in the sense of citizen science. This would involve them much more and take into account society's increased desire for active participation and co-design.
An expert from the field of behavioural science could be useful in finding out exactly how this could be done, what needs to be taken into account, and how they can best be involved.

In order to convince respondents that only the data they provided was actually transmitted, the corresponding data could be made available for download for each respondent. This would not be an absolute guarantee, but it would be a clear step toward transparency that could strengthen trust. Such a download function could also contribute to the aforementioned aspect of citizen science, as citizens might feel encouraged to look into these data. Increased interest and understanding can only be in the interest of official statistics.

Likewise, respondents could be offered not only the data, but also evaluation and analysis tools, e.g. within the smartphone app that also transmits the sensor data. The respondents could thus gain an impression of which analyses are possible with the data and which are not, what can be read out of their data, and what cannot be read out.
At this point, it is also essential to expand contact with legal experts. Their experience in what data processing and analysis is possible under what circumstances must be taken into account. They may be able to test and examine the applications and issue a certificate attesting to data economy and compliance with guidelines for sensitive data use. In the same vein, an assessment and certification by objective, independent experts, such as the Chaos Computer Club, would certainly be helpful. Certification by such an institution could be very conducive to building trust.
What needs to be done in any case with regard to data dissemination is to maintain a close exchange with legal experts and data protection officers in order to identify new developments, restrictions and opportunities in good time and to be able to develop good solutions on this basis.

In order to guarantee the protection of the collected data in the applications and during transmission, it is important to keep up with the latest research on privacy preservation techniques, encryption, and possibly also approaches to decentralized data storage. Legal aspects must also be taken into account.

4.3. Summary

In the end, it can be said that the spread of digitization opens the door to new forms of data collection and makes techniques such as smart surveys possible in the first place. On the other hand, these new techniques mean much more than just a new type of data collection, such as the change from paper questionnaires to telephone surveys with interviewers. It is like a paradigm shift that poses major

challenges for official statistics, especially in the area of communication. The necessary trust to be able to involve citizens and encourage them to participate can only be achieved by keeping one's finger on the pulse in the various sub-disciplines, implementing these findings and at the same time communicating them transparently and offensively. In the end we have always be aware: the best developed technologies are useless, if they are not used.