

# Position Paper on Mixed-Mode Surveys

*Draft presented to DSS and DIME-IT groups*

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## Executive summary

The COVID-19 pandemic has had a direct impact on the development, production and dissemination of official statistics both on a European and national level. The health and public safety measures introduced by national governments put face-to-face interviews on hold and generated disruptions to data collection in all EU Member States (MS). While the use of new data sources has proven to be very important during the crisis, the use of surveys has been just as important for rapidly measuring new adjustments in behavior, working conditions, etc. This has demonstrated the relevance and flexibility of social surveys.

This situation led countries to make methodological and practical choices for survey collection without the need for direct contact of interviewing staff (i.e. remote survey data collection). Many countries found that the available methodological and practical elements, while useful, were not entirely conclusive or adequate for their surveys. At the European level, the MIMOD project provided a considerable amount of information on the use of mixed-modes, but this project did not have any particular follow-up, notably because of the COVID-19 crisis.

Given the considerable experience gained by Member States in remote survey data collection during the crisis, and the current methodological and practical knowledge, the DIME-IT and DSS groups considered it relevant to set up a group of delegates from NSIs in order to define a common

position on what should be done in this field for the coming years at a European level.

This “position paper” provides recommendations to the DIME and DSS on the next steps to be taken to tackle the most important challenges at ESS level for the development of mixed-mode surveys. These recommendations address methodological and data collection issues that should be explored together, over the next few years, on mixed-mode surveys.

In order to develop its recommendations, the group conducted a systematic review of available materials, including the MIMOD project reports, and found it useful to supplement these materials with MS experiences during the COVID-19 crisis. The group therefore developed a questionnaire for Member States on the collection of the various household surveys during this period, recommending that this questionnaire be completed by a methodologist and a survey expert. A total of 32 countries, out of a potential 37 countries, responded to the questionnaire, which shows the enormous interest of NSIs in these issues. The questionnaire detailed countries’ use of (new) modes for collection of household data, before and during the COVID-19 crisis taking into account the most relevant household-surveys (LFS, EU-SILC, HBS, ICT) of the European Statistical System. The analysis of the responses showed that survey quality suffered during the crisis, as evidenced by the decline in response rates, particularly in Q2 2020, but countries quickly recovered, with alternative collections to CAPI (computer assisted personal interviewing). A lot of countries opted to move to CATI (computer assisted telephone interviewing) during the crisis and gave details in their responses about the new methods they introduced to ease the way of a new mode and also on the problems they encountered. This work confirms that the practical experience gained by countries in mixed-mode household surveys during the crisis is considerable.

This is therefore the right time for the European Statistical System to draw on the experience gained by the Member States' NSIs to build, together, the future of social surveys.

For this, the group recommends to the DIME and DSS the following:

### **R1.Endorsement of mixed-mode surveys as good practice**

Based on the European Statistics Code of Practice (ESCoP) Principles 3 “Adequacy of Resources”, 4 “Commitment to Quality”, and 10 “Cost-Effectiveness”, the group, taking into account the ongoing developments recommends that DSS and DIME, endorse the mixed mode surveys as good practice, that is to say as a modern and efficient method of collecting household survey data. Mixed-mode surveys increase the responsiveness of surveys to new situations and at the same time improve the coverage of the potential respondent population by offering people collection modes that are most convenient for them. Resolute actions must be taken at the European level to remove the obstacles to this development.

### **R2.Systematic review of European regulations regarding the length of questionnaires**

Given ESCoP Principle 9 “Non excessive burden on Respondents”, and in particular indicators 9.1, 9.2, and 9.6, the length of survey questionnaires can sometimes be a barrier to the development of mixed-mode data collection, as highlighted by the expert consensus that questionnaires that are too long cannot be administered in CATI or CAWI (computer assisted web interviewing), or that household attention decreases with the amount of time it takes to complete the questionnaire. Therefore, the group recommends undertaking a systematic review of European regulations that involve survey questionnaires of a length that is incompatible with the purpose of omni-mode questionnaires, which are recommended in mixed-mode surveys.

### **R3.Organizing and financing research activities**

Considering ESCoP Principle 12 “Accuracy and Reliability”, and in particular its indicator. 12.1 and 12.2, and Principle 7 “Sound Methodology”, the mastering of mode effects is a key issue of the development of mixed-mode data collection. The group believes that more empirical research needs to be done in this area. Therefore, the group recommends organizing and financing European methodological survey campaigns, in particular through randomized experimental designs, in order to measure mode effects and to guarantee, through the application of an adequate survey design and combination of collection modes, the ability to deal with them in the common survey regime. These campaigns should first lead to a sharing of knowledge and methodologies. Based on the results, guidelines could be provided. Consequently, such methodological campaigns should become a standard practice in European statistics for household surveys, contributing to country quality reports, while being promoted at the European level.

#### **R4.Cooperation and sharing of IT tools**

In line with ESCoP Principle 1bis “Coordination and Cooperation”, and more specifically indicator 1bis.3, the group recommends initiating cooperation between ESS countries to specify and share case management tools, or more generally, IT resources useful for mixed-mode surveys<sup>1</sup> in order to be able to efficiently design and monitor mixed-mode collections for household surveys. These shared tools should be strongly inspired by those already developed by some Member States. Eurostat should promote the coordination of these shared tools<sup>2</sup> (for example by financing the development of shared tools or upgrading shared tools).

#### **R5.Experimentation and research for modern (“smart”) devices**

Although not many countries have started experimenting with collecting surveys on smartphones, and the maturity of this type of collection platform is still much lower than that of other platforms (CAWI, CATI, PAPI (paper), CAPI), the group considers that, given its widespread use in people's daily lives, the ESS must continue to meet the challenges of collecting “classic”<sup>3</sup> surveys on this type of device. This is why the group recommends supporting and stimulating experimental research on this type of collection tool, in terms of questionnaire design, mode effect treatment and case management. (ESCoP principle 11 “Relevance”, indicator 11.1).

#### **R6.Improving the quality of survey frames**

Given the ESCoP Principle 7 “Sound Methodology”, and in particular indicator 7.3 that emphasizes the importance of having high quality sampling frames, these frames today generally suffer from poor quality of contact information, particularly telephone and e-mail addresses. This prevents NSIs from contacting respondents in the same ways they might be surveyed. For this reason, the group recommends that legal work be undertaken on how access to customer contact data of telecom and internet providers could be mobilized to improve the quality (completeness and timeliness) of the survey frames. In parallel, communication should be developed to explain to the public why it is important for NSIs to have access to their contact data.

Based on these recommendations the group suggests that three follow up-actions should be launched in the short term:

##### **1. Action I: Organizing workshop(s) on sharing good practices with mixed-mode designs**

- 1 like tools for creating omni-mode questionnaires, for example.
- 2 within the Task Force for HBS and HETUS, a Governance guide of such shared tools is being developed and should give some fruitful inspiration.
- 3 As opposed to new types of observations, such as the collection of GPS data, already well identified by survey methodologists as opportunities offered by smartphones. The subject here is to study how to collect questions on living conditions, work, etc.

### **of European household surveys**

In such workshop(s), the NSIs could be invited to present and share their practices on how they have dealt with the COVID-19 situation with respect to data collection and household survey designs. General guidelines and recommendations could be developed, while not preventing Member States for using their well proven individual solution.

#### **2. Action II: Mandating a specific Task Force for mixed-mode households surveys**

The Task Force (or other relevant working groups format) should bring together social survey experts and methodologists and should focus on the various technical and practical challenges that arise in the development of mixed-mode surveys, and host IT and experimental work, as recommended above. The group recommends the DIME and DSS to discuss the possibility of setting up groups dedicated to the various issues of mixed-mode development and start drafting their mandate.

#### **3. Action III: Setting a focus of future training**

The group recommends the ESS to consider the introduction/redesign of any existing training on this topic and include it in the European Statistical Training Programme (ESTP).

## 1. Context and motivation of the position paper

The COVID-19 pandemic has had a direct impact on the development, production and dissemination of official statistics on both a European and national level. The health and public safety measures introduced by national governments put face-to-face interviews on hold and generated disruptions to data collection in all EU Member States. While the use of new data sources (particularly private and even administrative) has proven to be very important during the crisis, the use of surveys has been just as important for rapidly measuring new adjustments in behavior, working conditions, etc. This has demonstrated the relevance and flexibility of social surveys.

Since the outbreak of the pandemic, the European Statistical System (ESS) has produced various guidelines for the whole ESS on how to tackle these unexpected challenges to ensure the production of official statistics that has again proven to be essential for decision-makers. Many countries point out that the COVID-19 crisis has prompted them to move from traditional household survey data collection to online, telephone or mixed-mode data collection. The Member States had to make emergency choices and found that the available methodological and practical elements, though useful, were not entirely conclusive.

The Directors of Methodology and IT Directors Group (DIME-ITDG) Steering Group discussed the situation at its November 19th 2020 meeting and agreed to carry out a more thorough investigation on possible long-term impacts. In order to move forward, a group of delegates from the DIME and the Directors of Social Statistics (DSS) volunteered to prepare a position paper on the current and future challenges with household surveys, namely methodological and data collection issues. The group of countries that volunteered has been appointed to prepare the paper. It includes representatives of the National Statistical Institutes (NSIs) of Austria, France, Hungary, Ireland, Italy, Slovenia and is chaired by France. The members of the group, and authors of this document, are:

- Austria (Statistik Austria): Thomas Burg, Nadja Lamei
- France (INSEE): François Beck, Gwennaëlle Brilhault, Patrick Sillard
- Hungary (KSH): Petra Fekete-Nagy, Ferenc Mújdricza, Zoltán Vereczkei
- Ireland (CSO): Fiona O'Callaghan, Fiona O'Riordan,
- Italy (Istat): Maria Clelia Romano, Claudia De Vitiis,
- Slovenia (SURS): Andreja Smukavec, Martina Stare

Most of the pre-COVID-19 methodological issues have been reviewed in the Mixed Mode Designs in Social Surveys (in short : MIMOD project), but many of the suggestions for further development made within the framework of MIMOD have not yet been acted upon. In addition to this, considerable experience has been acquired by countries during the crisis, which has also been put into perspective and integrated into this report, based on the answers provided by the Member States to a questionnaire that targeted many COVID-19-specific issues and their possible longer-term impact on household surveys.

The aim of this paper is to provide recommendations to the DIME and DSS to agree on next steps to be taken to tackle the most important challenges at ESS level for the development of mixed-mode surveys. These recommendations address methodological and data collection issues that should be explored together, over the next few years, on mixed-mode surveys.

The paper is organized as follows. The organization of the work carried out by the group is presented in section 2. As already mentioned, a questionnaire addressed to NSIs to collect the experience of Member States during the COVID-19 crisis was prepared, implemented and then analyzed by the group. The content of this questionnaire and the main results are summarized in

Section 3. In Section 4, these results are put into perspective with previous work at European level carried out in the framework of the MIMOD project and the main challenges for European statistics in this area are developed. Finally, section 5 concludes with recommendations to DIME and DSS for the organization of work that could be usefully planned at European level in the coming years.

## 2. Organization of the work

As mentioned above, methodological and organizational issues have already been extensively studied and discussed at European level in the framework of the MIMOD (Mixed-Mode designs for social surveys) cooperation grant awarded by Eurostat (Signore, 2019). The MIMOD work started in December 2017 and ended in May 2019. The body of material available is a major reference for the topic of mixed-mode surveys.

Therefore, the group decided to undertake a systematic review of this material, looking in particular at the recommendations that were made to the European Statistical System (ESS) for further work. This systematic review resulted in working papers written by the group members, summarising the work and highlighting the recommendations. These recommendations have not yet been implemented, which is certainly a consequence of the COVID-19 crisis that started just after the end of the MIMOD work. Part 4 of this document is partly based on the recommendations that the group considered to be still relevant, in light of its members' own experience and the COVID-19 crisis. Indeed, the outline of Part 4 follows that of the MIMOD report.

In 2019, a majority of countries still saw mixed-mode only as a potential and had not really taken the plunge, except for very specific surveys such as the one on information and communication technologies (ICT). Coincidentally, the COVID-19 crisis pushed countries to test the organization of mixed-mode surveys: face-to-face was no longer a credible mode of collection almost throughout 2020. The group therefore felt that it would be particularly useful to supplement the MIMOD material with feedback from countries on the collection of mixed-mode surveys following the COVID-19 crisis.

A questionnaire was then designed by the group between February and May 2021 (see **Annex I**). This questionnaire was implemented by the group's Irish colleagues in the EUSurvey tool. It was sent to representatives of the NSIs of the Member States (and associated countries) at the DIME/ITD and DSS groups. The mailing took place in mid-May, with the final returns collected at the end of June. As the time available to analyze the questionnaire results was quite short (July-September), the work was distributed among most of the group members and a template was developed to report on repetitive parts of the different surveys studied, in order to harmonize the reports. **Annex II** presents the tables of results produced and the associated elements of analysis.

The group met at least once a month between February and October 2021, in order to follow the progress of the work and to allocate tasks. The minutes of these meetings are available on a dedicated web page<sup>4</sup> hosted in the github repository of Insee-Fr.

Progress reports were given at the DSS plenary meeting on 14-15 April 2021, at the WG Methodology meeting on 28 April 2021, and at the DIME-ITDG steering group meeting on 21 May 2021.

Finally, a draft position paper was prepared by France, based on the written material collected earlier, the reports on the MIMOD packages and the analysis of the questionnaire, submitted to the

4 <https://insee-frlab.github.io/ESS-Multimode-PP/>

group and discussed during two meetings in September and October. This report is the final one validated by the group.

### 3. The questionnaire to NSIs

The questionnaire consists of two different parts<sup>5</sup>:

- After a preliminary phase for respondent's identification, Part 1 is devoted to a detailed overview of the pre-crisis period and then the crisis period in terms of participation, distribution by mode of the collected responses and evolution of contact strategies for various European surveys;
- Part 2 is devoted to the expression of countries' wishes regarding the work that could be undertaken at the European level on mixed-mode as well as to their own experience of mixed-mode data collection.

The questionnaire is presented in Annex I and the raw tables of results are given in Annex II. Detailed comments are provided throughout the tables in Annex II. This paragraph outlines the main lessons that can be drawn from the survey.

A total of 32 countries<sup>6</sup> participated in the survey, while the group had identified a potential of 37 countries corresponding to the Member States and some commonly associated countries. The list of potential countries is given at the beginning of the questionnaire (Annex I). Participation is therefore very high given that countries had only one month to respond and that the questionnaire was very specific in what was asked. This shows a very clear interest from European countries in the issues raised by the questionnaire and this position paper.

The analysis of the evolution of response rates shows a clear negative impact of the COVID-19 crisis in 2020. And within 2020, the LFS profiles<sup>7</sup> for both waves 1 and 2 show that the most difficult part was the first, and even more so, the second quarter of the year. In addition, the problems were much bigger in wave 1 due to lack of contacts in comparison to wave 2 when the pandemic started. The end of the year was more favorable: compared to 2019, more than 2/3 of countries experienced a drop in response rates. The median decline was, for example in LFS-wave1, 8 percentage points in Q1, 10 points in Q2, and 3 and 5 points in Q3 and Q4, while the number of countries affected by a decline fell in the latter two quarters. Also regarding HBS<sup>8</sup>, the overall median response rate decreased from 45% to 35% and the median decline was 4 percentage points.

At the same time, mixed-mode was expanding rapidly, with telephone interviewing (CATI) dramatically replacing face-to-face in all surveys<sup>9</sup> and for a large majority of countries. For example, while 17 countries were interviewing by CATI for the LFS wave 1 in 2019, CATI respondents represent 5% of respondents (median). By the end of 2020, 9 more countries were using CATI and CATI respondents accounted for more than 90% of all the respondents for those countries. For HBS<sup>10</sup>, while only 2 countries used CATI before the crisis, after March 2020 that became 10.

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5 In this section, the numbering of the parts and the numbering of the paragraphs refer to those of the questionnaire in **Annex I**.

6 Annex II

7 Annex II- sections 1 and 2

8 Annex II- section 5

9 Annex II- sections 1 to 6

10 Annex II- section 5

It is also clear that countries have tried to develop alternative collection modes in 2020 to cope with the crisis. However, introducing a new collection mode appears much more complicated than increasing the use of an existing one. This can be seen for CATI: in 2020, as mentioned above, the proportion of CATI respondents becomes very high, especially in countries and for surveys where CATI was already a collection mode. In contrast, a smaller number of countries have introduced CATI for some surveys and, in even fewer cases, CAWI. Most of these introductions are due to the crisis. This probably explains why  $\frac{1}{4}$  to  $\frac{1}{2}$  of the countries, depending on the survey, do not plan to maintain the changes in collection mode, as the quality of the collected data and the fieldwork monitoring is generally perceived to be lower. On the other hand, when countries wish to retain the changes they have made, the main reason, apart from safety reasons, is cost-effectiveness.

These observations may differ, depending on the survey. The survey<sup>11</sup> on Information and Communication Technologies (ICT) is clearly different, as mixed-mode was already very common before the crisis: 20 countries out of 28 were using more than one collection mode before the crisis for this survey; 17 were already using CAWI; these levels remain during the crisis.

The proportion of CAWI respondents for the 17 countries that offer this collection method for ICT is 40% on average, much higher than in any other survey, even in cases where this mode is already used: for example in the second waves of SILC and LFS, the proportion of CAWI is about 10% of the respondents. This share of CAWI respondents is stable in 2020, both for ICT and other surveys where this mode is used. On the other hand, for ICT as in the other surveys, there is a very sharp increase in CATI (representing, on average 33% of respondents in 2019 and 70% in 2020) and a parallel decrease in CAPI (60% in 2019 to 17% in 2020, with the number of countries using CAPI halving at the same time).

Apart<sup>12</sup> from changing the distribution of response modes, countries have tried to adapt their collection systems to the crisis. The most frequent changes were in contact channels (contact letter including a QR code, use of e-mail, SMS, innovative ways of obtaining telephone numbers by changing legislation or obtaining them from a public administration) and mode selection (CATI was very often introduced instead of face-to-face interviewing, using the same interviewer who calls by telephone). Changes were less frequent in the use of the sampling frame, ex-post calculations (non-response model and calibration) and the use of administrative data.

The development of mixed-mode, in particular CATI and CAWI, supposes, at one stage or another of the process<sup>13</sup>, the availability of adequate means of contact (telephone number and/or e-mail) for the respondents. Access to telephone numbers (25 out of 30 countries) is more frequent<sup>14</sup> than access to e-mail addresses (10 out of 30). Countries that have access to telephone numbers most often get it from the respondents themselves or through a mixture of information, some of it private. For e-mail addresses, the pattern is similar, with some being obtained from public authorities. A large majority of countries consider that they have coverage problems, notably under-coverage, for these data, for example on particular sub-groups of the population (young people, elderly people, or rural areas) or simply bad contact data. Some countries report legal difficulties in holding these details, which would only be possible for those who explicitly authorize the NSI to hold them.

During the COVID-19 crisis, countries were innovative in the means they used to contact respondents<sup>15</sup>, in addition to the classic means such as the paper letter: web page, sending letters by e-mail, post in social media, and SMS. The messages were also adapted to emphasize the

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11 Annex II- section 6

12 Annex II- section 7

13 It can also be collected in the process by sending a letter that allows the respondent to connect to a web platform or send a phone number to the NSI.

14 Annex II- section 8.1

15 Annex II – sections 8.3 to 8.5



particularity of the COVID-19 period and the importance of having statistics. Cooperation with local authorities also proved useful. This shows that new experience has been acquired in this field as well.

Among the challenges that countries faced during the COVID-19 crisis<sup>16</sup> was the transition from CAPI to CATI interviews, where the length of the interview was a real difficulty, as well as the low coverage of contact bases in terms of telephone numbers. Of course, these problems mainly concerned countries where CATI was not yet a common mode of collection or was difficult to broaden (for example because there is no phone number database).

A total of 23 countries (out of 31) identify possible actions at European level to improve their organizational capacity to better implement new household survey designs, with a particular focus on methodological improvements. These actions could be implemented through the setting up of working groups, training courses, and workshops and could usefully benefit from European grants. Unsurprisingly, the countries identify the following as topics of interest for work that could be carried out at European level:

- developing and sharing of case studies and good practices,
- drafting of guidelines,
- research on how to combine modes, statistical methodology and the quality of mixed-mode surveys, with particular attention to the correction of mode effects, and the issues of sampling and variance computation,
- research on how to adapt questionnaires to the mode of collection,
- training of interviewers for remote collection,
- development of mixed-mode survey IT platforms.

## 4. The future and challenges of mixed-mode surveys

As mentioned earlier, the challenges of mixed-mode household surveys were studied in depth during the MIMOD project. Most of the issues raised then are still valid, although the COVID-19 crisis has given them new relevance. But before we begin, it is useful to clarify some defining principles.

The MIMOD project aimed to help NSIs meet the "challenges of mixed-mode and multi-device collection". However, it is clear, particularly from the questionnaire to countries, that attention is particularly drawn to the challenges of mixed-mode when countries have to change their collection pattern by using other forms of questioning than those they usually use. In this text, we use mixed-mode to designate surveys where a given protocol of collection is associated to a given sub-sample of the total survey sample<sup>17</sup>.

The statistical problems that arise are of a different nature. If for a given question there is only one mode of collection, then the mode is inseparable from the question asked and it is, in a sense, pointless to worry about it. On the other hand, if several collection modes coexist for the same question, it is normal for the mode to influence the response and the statistician must, in one way or another, anticipate and control the impact of the mode on the response.

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<sup>16</sup> Annex II – section 8.6

<sup>17</sup> For example in surveys on violence, some phases may be in CAPI, while the most sensitive questions may be asked under headphones. We consider that if this protocol applies to all respondents, then the survey is not mixed-mode in the sense of this text, because in this case, for a given question, all the respondents use the same and unique response mechanism. In this case, we would rather suggest to designate this situation as *multimode*.

In a way, mixed-mode reveals problems that have always existed: if the mode of collection has a bearing on the answer or on the participation to the survey, then the study of the ways of asking the question, of which the mode is one component, should be at the heart of the statistician's concerns. By using a single collection mode, one can avoid undertaking the studies that are inevitable with mixed-mode. One might then ask where the interest in mixed-mode lies? The interest in mixed-mode may be driven by the desire to move to a cheaper collection method. But in this case, the main problem is the change of mode, and once this is done, we return to a single-mode situation. In reality, combining collection modes makes it also possible to reach people that are reluctant to respond in certain modes by offering them modes that suit them. The decline in response rates, which most countries are experiencing, can be compensated for by offering a wider variety of collection modes to respondents. What happened during the COVID-19 crisis confirms this: indeed, while survey collection switched abruptly to phone or internet, response rates did not drop that much with respect to 2019 collections (exception in 2020 Q2). In a minority but still significant fraction of cases (up to 1/3), response rates even increased (**Annex II**). This would indicate that having multiple potential collection modes is therefore a way to be resilient and offer respondents a mode that suits their situation. Mixed-mode is therefore not an unnecessary complexity: it is most certainly the future of household surveys. However, this implies mastering the difficulties inherent in it.

Anticipating and controlling the impact of the mode gives us the keys to tackle the difficult issues. There are issues of practical organization and case management, questionnaire and contacts, statistical methodology, each of them being more or less related to the others. As a kind of tribute to the work carried out within the MIMOD project, we have chosen to organize the presentation of this part according to the work packages organization of MIMOD, picking up their recommendations for further work that we see as still relevant, supplemented by our own observations, in the light of the elements emerging from the questionnaire.

The first subsection of this part is then devoted to the way the modes could or should be combined. We then skip to the statistical methodology issues. We then go into the case management problems and finally conclude on questionnaire and survey design issues.





## 4.1. How to best-combine data collection mode?

Combining modes can be a difficult task. This combination can take on various forms:

- Concurrent design: different data collection modes are in the field at the same time
- Sequential design: modes are administered in a sequential time period, one after the other
- Partly sequential – partly concurrent design: the first data collection mode remains in the field when the second one(s) is(are) made available to respondents
- Adaptive design: different modes to different sub-populations on the basis of frame data, administrative data, paradata (also different effort for timing and number of calls and visits, incentives, etc.)

Member States' experience is still developing in this area and the COVID-19 crisis has stimulated initiatives for remote collection of surveys. Nevertheless, the questionnaire also showed that the transition, mainly from CAPI to CATI, and the results obtained by the countries are not entirely satisfactory. A lot of work remains to be done on how modes can be combined to achieve the best possible survey quality. The aim may be to increase response rates or to reduce collection costs by using the least expensive modes for the most easily reached respondents (e.g. CAWI) and the most expensive modes for the most difficult to reach (e.g. CAPI). Alternatively, one may seek to make collection as efficient as possible, for example when the survey time is reduced to a few weeks. Survey designs combining modes can also be linked to the objectives of identifying measurement and selection errors and applying statistical models to correct for these problems (see also section 4.2).

The MIMOD Work Package 1 (Deciding the mixed-mode design) report made robust recommendations:

- CAWI is a natural first mode for sequential designs in cross sectional surveys.
- Checklists that try to structure the mode choice and mode allocation may be needed, including objectives and risks.
- Questions have to be addressed about adaptive design (relevant for people with higher levels of education or with higher interest levels?).
- Organizational issues linked to mixed-mode need to be further explored (how to deal with incomplete or inconsistent questionnaires from the web? Should CATI interviewers share a work place? How to optimize the global communication to increase response rates? etc.).
- Concerning incentives, unconditional ones are supposed to be more efficient, but differentiation (target hard to reach sub-groups with a specific incentive) can also be considered.

The pandemic had a significant impact on household interviewing. Some countries had to change their mode of collection very quickly. The output from the questionnaire shows some of the challenges that countries encountered during this transition and these findings endorse the work of MIMOD. We can learn from these experiences by reviewing the outcome, 11 out of 29 countries will keep wholly or partially some of the changes they made when collecting the LFS.

More work may need to be done around profiling the respondent and providing the mode that is most effective i.e. adaptive design, but countries have now made the change and there is an opportunity to make this effective.

## 4.2. Mode biases and mode effects; adjustment of mode effects

In terms of statistical methodology, MIMOD (WP2) provided all ESS countries not only with an updated overview about methodological solutions to improve the quality of estimates produced in

mixed-mode surveys, but also with a tool -represented by a set of guidelines- that could support them in properly designed methodological strategies to correctly deal with mode effects.

What is a mode effect? It is the combination/sum of selection effect (resulting from errors of non-observation) and measurement effect (resulting from observation errors). Selection effects are caused by the selection mechanism of a mixed-mode survey design which results in the partitioning of the sample into respondents and non-respondents. Selection effects are a combination of coverage and non-response effects. Measurement effects are caused by specifics of the modes employed in the survey and affect the recorded responses to the survey questions. They arise from the same respondent potentially giving different answers to the same questions in different modes<sup>18</sup>. Both selection and measurement errors may also be present in mono-mode surveys, but a mixed-mode scheme will certainly emphasize the problems, since the two effects are confused.

The first step to evaluate and possibly correct these effects (biases) is to try to disentangle these two because the appropriate corrections suppose identification of the two effects. These are highly dependent on assumptions and some of them may not be possible to check if an appropriate survey design is not set up. This raises the question of the practicality of these designs, and their cost-benefit analysis.

From the deliverables of MIMOD WP2, it is clear that there are still open issues on:

- the methods to disentangle
- the hypothesis below these methods
- the designs suitable to identify the effects
- the cost-benefit analysis of these designs.

In this context, carrying out some tests of the various possible approaches in a coordinated way at the European level, would be very valuable in order to share the work. The current situation is that there are many questions about this, but not much effort from the Member States on these issues. There are some ideas, emerging from the questionnaire and from recent work that the survey design, using sub-samples with different combinations of modes, can be very relevant in identifying different effects and then disentangling them. But this is related to the way the survey design is constructed and therefore has a feedback effect on the way the modes are combined (see §4.1).

The examples presented in MIMOD WP2 are related to the experience of Italy and the Netherlands which, although important, may not simply apply in another country. It would be beneficial to broaden the scope of experience to other European countries.

From the final report of WP2 we can conclude that the experiences of different countries could be shared at a European level. In this respect, it could be useful to create a repository of documents and material shared by NSIs and continue the review of the literature contained in the first deliverable of MIMOD WP2. And, at European level, suitable modes of collaboration should be identified in the future to proceed with developments in this area, e.g. through a network of countries interested in continuing the discussion on methodological issues by setting up experimental surveys to test configurations to disentangle mode effects. [WP2 D4 §4].

### 4.3. Case management in mixed-mode data collection

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18 MIMOD WP2, Work Package 2: Mode bias/mode effects and adjustment for mode-effects Deliverable 1: A report containing an overview on current methodologies adopted at the ESS NSIs to deal with mode bias/mode effects in mixed-mode designs.

The use of several modes of collection implies very close monitoring of contacts with respondents and of the progress of the survey, in particular to adapt the mode proposed to the survey according to the results of the first contacts. The existence of a central case administration therefore seems to be a key element. More generally, it is seen as a necessary property of new data collection systems.

Organizational and technical change should always be thought of together. MIMOD (WP3) proposes a standardization protocol. Within the ESS the case management is very heterogeneous. They differentiate along the following four dimensions: (1) the degree of component integration, (2) the component completeness, (3) the degree of in-house developed product usage and (4) the survey integration.

A large degree of component integration, when the components are linked to each other (the information is automatically transmitted), clearly helps and in that case, most important domains of data management are covered. Generally, social surveys and business statistic surveys are separated in most of countries. But from a technical point of view, some key elements could be shared. So it could be useful to consider the question of some level of integration between the two spheres.

The tools in use for the different data collection components can be developed in-house by the NSI or can be external tools that are developed and supported by a commercial company. Many NSIs develop in-house. But why do they do so? In terms of input harmonization, NSI in-house development is more difficult to share. At the European level, one could imagine encouraging countries to share developments of shared tools.

#### **4.4. Mixed-mode and device-mode questionnaire and contact designs**

Some important topics are related to questionnaire adaptation and contacts, such as mode dependency of questionnaires, error and consistency checks that can be implemented in some modes (notably CAWI), handling of "don't knows" and non-responses to questions, and key questionnaire items and question types in mixed-modes for developing omni-mode questionnaires. There are also issues of contact with people: how to contact them, standard messages, reminders, access to contact details.

Also in this area, MIMOD (WP4 devoted to mixed-mode questionnaire designs) set out in great detail different experiences of mixed-mode i.e. types of collection – concurrent vs sequential, questionnaire design consideration – uni-mode vs mixed-mode, suitability of different surveys for different modes etc. It has then achieved some important results:

- It seems necessary to rebuild all model and national questionnaires and documentation with a mixed-mode paradigm in mind, to shorten, modularize, and simplify the European surveys questionnaires which were designed in a context dominated by face-to-face interviews
- The omni-mode approach (combining the different modes into ONE single questionnaire suitable for all modes) has to be taken as a starting point not only to make it easier to program and administer, but also in order to avoid measurement differences due to mode specific questions
- Easy exchange of experiences and test results is needed, since NSIs often struggle with the same issues and problems (idea of a wiki-based web page for exchange of examples, for instance on experiences of questionnaire divided to be administered in several waves, or on mixed-mode surveys including web for which the duration of the questionnaire exceeds 20-25 minutes (maximum length in the literature))
- The Campanelli typology<sup>19</sup> is useful and needs updating (CAWI specific recommendations)

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19 Campanelli et al (2011) developed a typology of questions in relation to measurement error and collection mode.

The questionnaire also provides very useful information. The pandemic launched most statistical institutes into a challenging household collection scenario as in almost every country face-to-face interviewing was suspended in March 2020. Of 29 countries who replied to the corresponding part of the questionnaire, 18 countries had to change mode for their LFS as a result of the pandemic. Of those, 11 countries have said they are going to keep some or all of these changes. ICT didn't experience as much change as this survey was already collected via CAWI or CATI in a lot of countries prior to the pandemic.

The questionnaire details the countries using new ways of collecting household data: many countries opted to move to CATI and give details in their responses about the new methods they introduced to ease the way of a new mode, including advance letters to respondents, notifications on websites, advance calls and use of social media. Countries who had access to telephone registers and/or email registers reported under coverage on both frames.

MIMOD discussed sequential or concurrent mixed-mode, further analysis of the questionnaire and possible follow up with some countries from a qualitative perspective would give us more insight into how each country proceeded and the outcomes they observed. The issue of under coverage of telephone and email registers may be influenced by countries reporting on issues with under coverage and with further analysis may influence the decision of sequential or concurrent or a mix of both.

MIMOD also made strong recommendations to Eurostat with regards to the length of the questionnaire, this has an impact on the quality and the response rate for each survey. This point is fully confirmed in the questionnaire responses: countries commented on some questionnaires not suitable for CATI and in their comments, countries have looked for training on questionnaire design for mixed-mode, possibly moving towards an omni-mode questionnaire.

Very little data on the use of incentives came back from the questionnaire. Many countries have indicated that they are making greater use of administrative data during this period, in addition to surveys. Use of social media and websites for communication of the change was indicated on the questionnaire. The group feels that all of these topics would benefit from further study.

In addition to that, the device-mode questionnaire was also studied by MIMOD (WP5). On this point, the COVID-19 questionnaires do not contribute much because the countries have had no time to adapt the technical aspects of the presentation of their questionnaires. MIMOD is therefore the reference in this domain. There are three dimensions of concerns raised by the MIMOD report:

- screen size
- navigation
- interview duration

Presently EHIS and SILC are not yet suitable in that perspective. ICT and EFT are promising in this respect, requiring only a slight adaptation of the questionnaire.

The report mentions that since smartphones are omnipresent, then we could even imagine that the questionnaires are first designed for these devices. And the report also argues that smartphones may reveal questions prone to measurement error. But some additional work needs to be done on that.

The report underlines some important directions of development concerning the mobile device mode: the length of the questionnaire should be reduced, get rid of grid questions, minimize open questions, multi-response questions should be replaced by multiple questions. And there are advantages of mobile devices in the CAWI mode: the omnipresence of these devices makes it possible to motivate respondents and it is possible also to fill in questionnaires everywhere at any



time, even if this may cause some problems in the quality of responses (issue of filling in during “residual times” during which the attention and motivation are rather low, and the risk of being interrupted is high).

In this work package, the report does not really discuss methodology and design issues related to mixed-mode, including a mobile mode. In this case, the adaptation of questions may cause a break in the functional equivalence<sup>20</sup> between the various modes; this is not really discussed in the report and should be studied further.

At the end, there are questions pending:

- Should the ESS questionnaire be revised for mobile device first?
- Should we develop a mobile device IT platform?
- Would the respondents prefer to use a mobile device or PC in the CAWI mode?
- What are the quality risks associated with the mobile device mode?

On all these questions, an ESS initiative deserves to be launched.

## 5. Position of the group and Recommendations for action

One of the key conclusions out of the survey conducted by the authors of this paper is that the situation of the crisis worked as a trigger to move towards mixed-mode surveys. The COVID-19 crisis has shown that NSIs were mostly capable of formulating and following an emergency plan and they could carry out the necessary actions to collect data under the changed circumstances, with new modes, new contact strategies and so on being used whenever needed. Now we have to use that momentum, consolidate what has urgently been established and take care of backing those processes by well-proven methodology. We cannot risk running into a situation as in 2020 again, therefore we need to combine our efforts and invest in the use of modes and survey methodologies. In doing so, a lot of cost and effort can be saved in the long run since otherwise the quality, comparability and often also the sheer existence of data we collect in our social surveys is at stake.

The analysis has shown that social surveys of the European Statistical System face common challenges across NSIs as well as across surveys. Different traditions, legislations and practices should not stand in the way of thinking in a general way in which direction data collections should be developed. We shall try to come up with recommendations for methods to facilitate sampling, collection and processing of data that can be of use for all surveys. Then as a next step we can differentiate wherever necessary, fine-tune the specifics for different surveys and countries. We must get rid of stovepipes and think more in general processes - thus we can become more efficient and learn from each other.

Concerning the actions needed at the European level to improve the NSIs capabilities to better implement new designs for household surveys, with special focus on methodological improvements, 23 countries (out of 32) completed the devoted part of the questionnaire, and the preferred actions that were selected by countries were well distributed among having workshops, sharing of good practices, providing trainings and setting up a dedicated Task Force to further address these issues.

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20 As opposed to formal equivalence. We distinguish between “formal equivalence” and “functional equivalence” to emphasize that the same question asked in the same way in two different modes can lead to different answers and we can try to adapt the question to the mode so as to obtain the same answer, even though the question is asked differently. This second approach is called functional equivalence.

Besides the insights brought about by the COVID-19 pandemic, the implementation of mixed-mode surveys is one of the most evident action fields in order to modernize official statistics. Not least of that, the European Quality Assurance Framework<sup>21</sup> suggests methods relevant for five different indicators of the European Statistics Code of Practice (ESCoP) which is the cornerstone of the quality framework of the European Statistical System:

- to regularly assess collection modes (indicator 4.2)
- to develop methodological work and supporting IT solutions to ensure the quality of statistics, especially when new and alternative data collection modes and sources are used as input (indicator 7.1)
- Regularly monitor data collection modes (indicator 8.3.)
- Action plans for simplification/modernization to reduce burden on respondents are developed, implemented and monitored (9.2)

These are concrete examples in how far the use of additional modes is anchored in the Code of Practice explicitly and there are also other principles and indicators which are affected implicitly.

Summing up, we see an agreement that the ability of implementing mixed-mode surveys while keeping up, and even increasing the quality of resulting statistics serves two general objectives:

- 1 to increase the reactivity of National Statistical Institutes and Eurostat in crisis situations;
- 2 to further improve the compliance to the Code of Practice.

Considering the general objectives, there is a need to react urgently. It is inevitable to set initiatives on a European level in order to achieve the following specific objectives:

- to increase the knowledge and capabilities regarding the implementation of mixed-mode surveys;
- to share experiences and gain from already established solutions;
- to strive for standardized solutions, also keeping in mind country or survey specificities, in order to be able to produce comparable and high quality statistics derived from mixed-mode surveys as well as to enhance the resilience of the production of statistics;
- to anchor the topic of mixed-mode surveys within the governance of the ESS in an appropriate way.

Action shall be taken as soon as possible and must be followed in a short period of time. We suggest an immediate start where possible and a focus of actions on the next three years with outputs becoming visible as soon as possible. If we do not act now we run the risk of increased costs and if the actions are not anchored at a European level there is a high risk that we end up in a disharmonized situation that does not allow policy makers to base decisions on comparable statistical results.

Considering this position and taking into account the analysis of the results of the survey, **the group formulates the following recommendations to the DIME and DSS:**

### **R1.Endorsement of mixed-mode surveys as good practice**

Based on the European Statistics Code of Practice (ESCoP) Principles 3 “Adequacy of Resources”, 4 “Commitment to Quality”, and 10 “Cost-Effectiveness”, the group, taking

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21 The aim of the [Quality Assurance Framework](#) is to accompany the CoP by providing guidance and examples in the form of more detailed methods and tools as well as good practices for the high-level principles and indicators outlined in the CoP.

into account the ongoing developments recommends that DSS and DIME, endorse the mixed mode surveys as good practice, that is to say as a modern and efficient method of collecting household survey data. Mixed-mode surveys increase the responsiveness of surveys to new situations and at the same time improve the coverage of the potential respondent population by offering people collection modes that are most convenient for them. Resolute actions must be taken at the European level to remove the obstacles to this development.

## **R2.Systematic review of European regulations regarding the length of questionnaires**

Given ESCoP Principle 9 “Non excessive burden on Respondents”, and in particular indicators 9.1, 9.2, and 9.6, the length of survey questionnaires can sometimes be a barrier to the development of mixed-mode data collection, as highlighted by the expert consensus that questionnaires that are too long cannot be administered in CATI or CAWI (computer assisted web interviewing), or that household attention decreases with the amount of time it takes to complete the questionnaire. Therefore, the group recommends undertaking a systematic review of European regulations that involve survey questionnaires of a length that is incompatible with the purpose of omni-mode questionnaires, which are recommended in mixed-mode surveys.

## **R3.Organizing and financing research activities**

Considering ESCoP Principle 12 “Accuracy and Reliability”, and in particular its indicator. 12.1 and 12.2, and Principle 7 “Sound Methodology”, the mastering of mode effects is a key issue of the development of mixed-mode data collection. The group believes that more empirical research needs to be done in this area. Therefore, the group recommends organizing and financing European methodological survey campaigns, in particular through randomized experimental designs, in order to measure mode effects and to guarantee, through the application of an adequate survey design and combination of collection modes, the ability to deal with them in the common survey regime. These campaigns should first lead to a sharing of knowledge and methodologies. Based on the results, guidelines could be provided. Consequently, such methodological campaigns should become a standard practice in European statistics for household surveys, contributing to country quality reports, while being promoted at the European level.

## **R4.Cooperation and sharing of IT tools**

In line with ESCoP Principle 1bis “Coordination and Cooperation”, and more specifically indicator 1bis.3, the group recommends initiating cooperation between ESS countries to specify and share case management tools, or more generally, IT resources useful for mixed-mode surveys<sup>22</sup> in order to be able to efficiently design and monitor mixed-mode collections for household surveys. These shared tools should be strongly inspired by those already developed by some Member States. Eurostat should promote the coordination of these shared tools<sup>23</sup> (for example by financing the development of shared tools or upgrading shared tools).

## **R5.Experimentation and research for modern (“smart”) devices**

Although not many countries have started experimenting with collecting surveys on smartphones, and the maturity of this type of collection platform is still much lower than that of other platforms (CAWI, CATI, PAPI (paper), CAPI), the group considers that, given its widespread use in people's daily lives, the ESS must continue to meet the challenges of

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<sup>22</sup> like tools for creating omni-mode questionnaires, for example.

<sup>23</sup> within the Task Force for HBS and HETUS, a Governance guide of such shared tools is being developed and should give some fruitful inspiration.

collecting "classic"<sup>24</sup> surveys on this type of device. This is why the group recommends supporting and stimulating experimental research on this type of collection tool, in terms of questionnaire design, mode effect treatment and case management. (ESCoP principle 11 "Relevance", indicator 11.1).

#### **R6.Improving the quality of survey frames**

Given the ESCoP Principle 7 "Sound Methodology", and in particular indicator 7.3 that emphasizes the importance of having high quality sampling frames, these frames today generally suffer from poor quality of contact information, particularly telephone and e-mail addresses. This prevents NSIs from contacting respondents in the same ways they might be surveyed. For this reason, the group recommends that legal work be undertaken on how access to customer contact data of telecom and internet providers could be mobilized to improve the quality (completeness and timeliness) of the survey frames. In parallel, communication should be developed to explain to the public why it is important for NSIs to have access to their contact data.

These recommendations, if adopted, should form the background for the following European initiatives that may be launched as follow-up actions:

### **Action I) Organizing workshop(s) on sharing good practices with mixed-mode designs of European household surveys**

Based on the input gathered from the questionnaire, **the group recommends the ESS to organize a specific workshop** (or a set of workshops), focusing, with the background of European social surveys, on the following:

- Invite countries to present and share their practices on how they have dealt with the COVID-19 situation with respect to data collection and household survey designs. The questionnaire the group used to collect information is a good basis to identify those countries that could be invited to give such presentations. Sharing of these practices among the countries is the number one way of moving forward.
- Apart from the sharing of practices in general, the workshop could focus on the following specific topics:
  - how to make survey designs as flexible as possible to support last minute changes due to such unexpected situations as the COVID-19 pandemic;
  - using SMS, chatbot or the use of smartphones in the designs, not only for calls;
  - use of new incentives/changed incentives strategies for household surveys;
  - new designs for household surveys with the use of administrative data sources and smart data;
  - contact procedures, communication tools and results;
  - balancing the questionnaire requirements and the length of surveys;
  - use of register information;
  - statistical processing in relation to mixed-mode surveys.

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<sup>24</sup> As opposed to new types of observations, such as the collection of GPS data, already well identified by survey methodologists as opportunities offered by smartphones. The subject here is to study how to collect questions on living conditions, work, etc.

## **Action II) Mandating a specific Task Force for mixed-mode households surveys**

Having a dedicated working group (referred to as Task Force in the survey) is considered important by the Member States. It is also important that the work mentioned in recommendations (2-4) above be housed in and overseen by **a dedicated Task Force**. The Task Force (or other relevant format of the working group) should bring together social survey experts and methodologists, similar to the Position Paper group, and should focus on:

- setting up and funding methodological randomized surveys that should be undertaken to identify mode effects and to test statistical correction methods or to test adaptations of the questionnaire to collection mode in order to control for mode effects;
- collecting information on the relevant research conducted by the Member States and share information with the ESS to give an overview of possibilities to inspire other Member States. Also, proposing future research on the field of;
- preparing guidelines for introduction and development of web surveys;
- developing methodological guidelines and sharing good practices for improving data quality in mixed-mode designs;
- providing a platform for live discussion on several mixed-mode survey designs and their (dis)advantages (e.g. first CAWI then CATI then CAPI as a waterfall system versus targeted sub-populations for different modes / using modes sequentially or simultaneously / combining multiple modes for the same respondents; specific questions in mode A and others in mode B, etc.);
- follow up the MIMOD project;
- analysis of possibilities to implement omni-mode questionnaire for specific IESS surveys;
- setting up a repository of shared tools for data collection;

**The group recommends the DIME and DSS to discuss the possibility of setting up groups dedicated to these issues and start drafting their mandate.**

## **Action III) Setting a focus of future training**

The 9 countries that indicated that **training courses** would be useful for future capability improvement, mostly mentioned mixed-mode survey designs and adaptation of questionnaires to different modes as the main desired focus of such training. More specifically to focus on:

- methodological and technical aspects of conducting mixed-mode surveys, but also to make hands-on training and existing solutions a very integral part of the training;
- how to adapt questionnaires to different modes, new information sources and how to make better use of technologies (smartphones);
- how to design questionnaires (focus on modalities of questionnaires on web);
- how to carry out sampling and standard error estimation, non-response and mode-effect analysis;
- how to motivate the respondents and how to negotiate;
- guidance and training on remote data collection.

**The group recommends the ESS to consider the introduction of new training or the redesign of any existing training on this topic and include it in the European Statistical Training Programme (ESTP).**

**Annexes:**

- **Annex I: Questionnaire of the Mixed-Mode data collection survey**
- **Annex II: Mixed Modes Data Collection Survey -Basic facts-**