WORKING PAPER

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Labour market change

European Company Survey 2019: Technical and fieldwork report

European Company Survey 2019: Workplace practices unlocking employee potential

CEDEFOP
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European Foundation for the Improvement of Living and Working Conditions

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Related reports: European Company Survey 2019: Translation report; European Company Survey 2019: Sampling and weighting report; European Company Survey 2019: Quality control report; European Company Survey 2019: Data editing report; European Company Survey 2019: Coding report; European Company Survey 2019: Data quality assessment

Research carried out prior to the UK's withdrawal from the European Union on 31 January 2020, and published subsequently, may include data relating to the 28 EU Member States. Following this date, research only takes into account the 27 EU Member States (EU28 minus the UK), unless specified otherwise.

This report presents the results of research conducted largely prior to the outbreak of COVID-19 in Europe in February 2020. For this reason, the results do not fully take account of the outbreak.

The European Centre for the Development of Vocational Training (Cedefop) is the European Union's reference centre for vocational education and training. It provides information on and analyses of vocational education and training systems, policies, research and practice. Cedefop was established in 1975 by Council Regulation (EEC) No 337/75.

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1. Introduction

1.1 Objectives and methodology

The European Foundation for the Improvement of Living and Working Conditions (Eurofound) and European Centre for the Development of Vocational training (Cedefop) joined forces to carry out the European Company Survey (ECS) in 2019. The ECS 2019 collected data in over 20,000 establishments in the 28 European Union Member States (EU28)[1] on workplace practices with regard to work organisation, human resource management, skills use, skills strategies, digitalisation, direct employee participation and social dialogue.

The **universe** represented in ECS 2019 consisted of the population of establishments employing 10 people or more in each of the EU28 countries. Establishments in the NACE[2] rev. 2 categories B to N, R and S were included in the universe, while NACE rev.2 categories A, O, P, Q, T and U were excluded from the universe. The **unit of enquiry** was the establishment.[3]

In each establishment, an interview took place with the **manager responsible for human resources** (**MM respondent**) and, when possible, also with an **employee representative (ER respondent)**, i.e. an individual or a body that has a recognised mandate to represent the staff of the establishment in discussions with management or its representatives.[4]

The ECS has been carried out by Eurofound every four years since its inception in 2004-2005 as the European Establishment Survey on Working Time and Work-Life Balance (ESWT). The second survey (performed under the new title European Company Survey) was completed in 2009 and the third survey in 2013. The ECS has been conducted as a telephone survey with management representatives and employee representatives since 2004. For ECS 2019, the approach followed was a **web-administered survey (CAWI), supported by telephone (CATI) contacting and follow-up**.

1.2 Survey timetable

The following chart presents the main components in the survey lifecycle of ECS 2019, from set-up and preparation to implementation and final reporting. The chart also shows approximate timings for each component. Preparations by Ipsos for ECS 2019 started at the end of 2017, while the main stage fieldwork took place in the first half of 2019. The final datasets were delivered to Eurofound and Cedefop at the end of 2019.

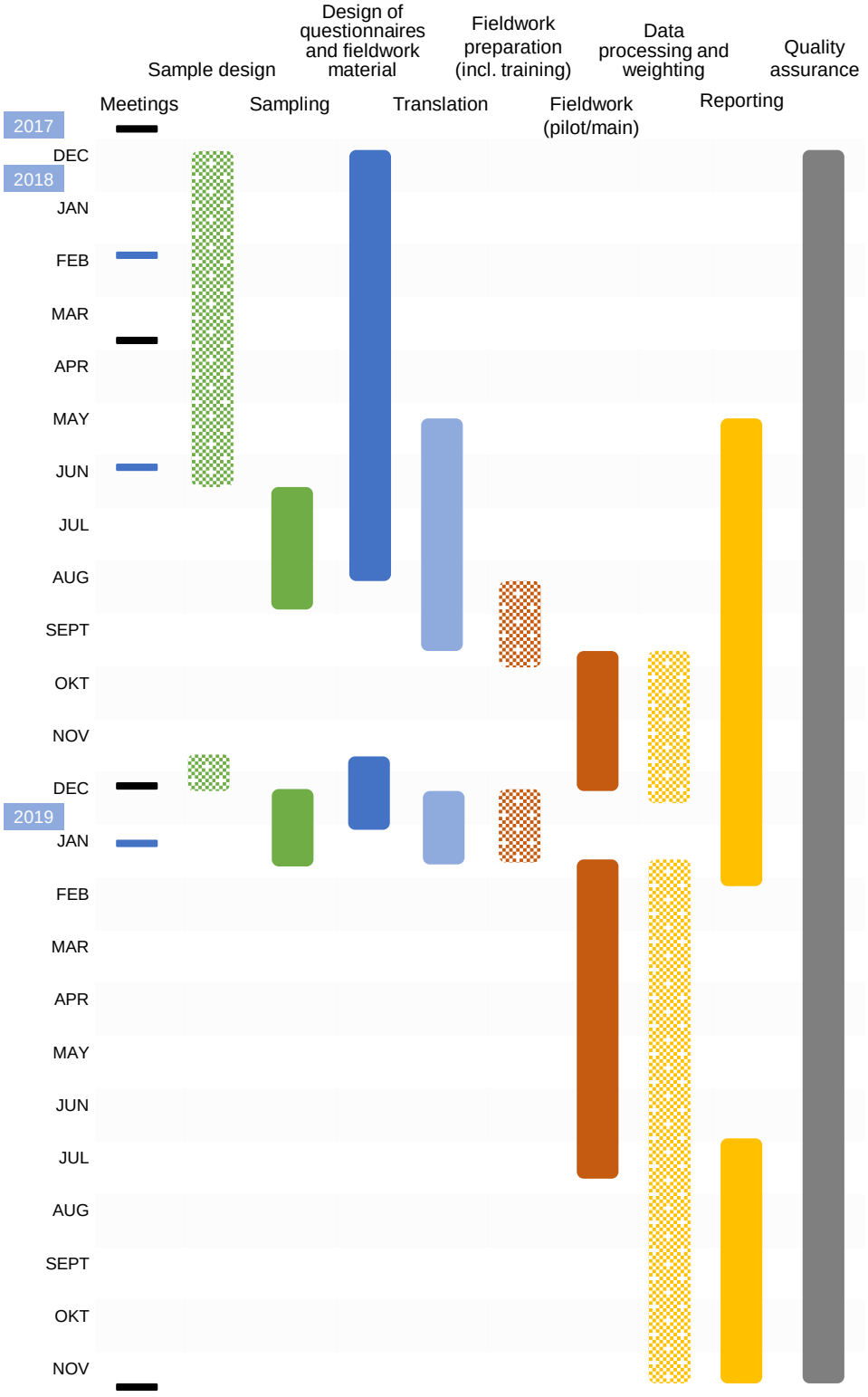
[1] Data collection took place while the United Kingdom was still a member of the European Union, references in this report are to the EU Member States at the time of data collection.

[2] Statistical classification of economic activities in the European Community, abbreviated as NACE, is the classification of economic activities in the European Union. For more information, see: https://ec.europa.eu/eurostat/web/nace-rev2/overview.

[3] 'Establishment' refers to a local unit, plant, site or branch of a company, regardless of the kind of activity taking place; it may be a production unit, headquarters, administrative or sales office, retail outlet, warehouse, distribution centre etc.

[4] EU regulation requires that establishments with 50 employees or more set up a system of employee representation, and smaller establishments can set these up voluntarily. Three overarching types can be distinguished: a trade union delegation, a works council, or a workers' representative.

Figure 1: ECS 2019 timetable



1.3 Structure of the technical and fieldwork report

This report presents an overview of the preparation and implementation of ECS 2019. Section A of the report covers project management, questionnaire development and translation, the screener process, design of email invitation and reminders, and sampling. Section B describes fieldwork implementation, fieldwork outcomes and main irregularities in the implementation of fieldwork. Section C offers an overview of post-data collection processing of the collected data and quality control.

In addition to the technical and fieldwork report, the following reports were produced:

- Cognitive interviewing report;
- Translation report;
- Pilot test report;
- Sampling and weighting report;
- Coding report;
- Data editing report;
- Quality control report;
- Non-response analysis working paper.[5]

[5] The Translation report, Sampling and weighting report, Coding report, Data editing report, and the Quality control report are available on Eurofound's website (https://www.eurofound.europa.eu/publications/report/2020/european-company-survey-2019-workplace-practices-unlocking-employee-potential#tab-03). The Cognitive interviewing report, Pilot test report and Non-response analysis working paper are made available on request.

Part A. Design of ECS 2019

This section of the report details the following aspects:

- project management;
- questionnaire development and translation process for the online surveys for management and employee representatives;
- development of the screener questionnaire;
- reminder process with telephone and email reminders;
- sampling (target population, sampling frames and sampling strategy).

2. Project management

2.1 Ipsos and its network partners

ECS 2019 was carried out by Ipsos and a network of local partners. The Ipsos coordination team, with team members based in Brussels and London, was in charge of the coordination and management of ECS 2019. The coordination team was made up of professionals from the International Social Research Institute (ISRI), all of whom have extensive experience in delivering large, multi-country studies.

Led by Andrew Johnson (Quality Director) and Femke De Keulenaer (Project leader), the coordination team was in charge of designing and translating fieldwork materials, issuing of samples, day-to-day fieldwork coordination and monitoring (both quality and progress), maintaining direct and daily contact with the national institutes, and data processing.

The fieldwork for ECS 2019 was conducted by Ipsos' local network partners, closely monitored by the Ipsos coordination team. The list of local network partners can be found in Table 1. This table also lists the local network partners in North Macedonia, Montenegro, Serbia and Turkey. These 'Instrument for Pre-Accession Assistance' (IPA) countries took part in the preparation phase but were not taken forward in the main survey following the pilot assessment.

Table 1: List of local network partners

	Local network partner
EU28 Member States	
Austria	Spectra MarktforschunggesmbH.
Belgium	Ipsos Belgium
Bulgaria	Ipsos Bulgaria
Croatia	Ipsos Croatia
Cyprus	Pulse Market Research
Czechia	MEDIAN CZ
Denmark	DMA Research
Estonia	Turu-uuringute
Finland	Taloustutkimu
France	Ipsos France
Germany	Ipsos Germany

	Local network partner
Greece	Ipsos-Opinion Greece
Hungary	Ipsos Hungary
Ireland	Ipsos MRBI
Italy	Ipsos Italy
Latvia	Latvian Facts
Lithuania	RAIT
Luxembourg	Ipsos Germany
Malta	Ipsos MISCO
Netherlands	Ipsos Netherlands
Poland	Ipsos Poland
Portugal	Ipsos Portugal
Romania	Ipsos Romania
Slovakia	MEDIAN SK
Slovenia	Ipsos Slovenia
Spain	Ipsos Spain
Sweden	Ipsos Sweden
United Kingdom	Ipsos MORI
IPA countries	
North Macedonia	Ipsos Turkey
Montenegro	Ipsos Serbia
Serbia	Ipsos Macedonia
Turkey	Ipsos Montenegro

2.2 Meetings

This section lists the meetings that took place between Eurofound, Cedefop and Ipsos in the course of the project. It also gives an overview of the seminars/briefings organised by Ipsos and local fieldwork visits undertaken by Eurofound and Cedefop.

The meetings that occurred during the project can be broadly classified into three categories:

- **Meetings between the Ipsos coordination team, Eurofound and Cedefop**
  During the course of the project, the project teams of Eurofound, Cedefop and Ipsos met three times; these meetings were held in London, Antwerp or Brussels. The meetings and the main subjects were:
    - **1st meeting** / 22-23 November 2017: Inception meeting in London
    - **2nd meeting** / 29 March 2018: Questionnaire finalisation meeting in Antwerp (also attended by translation specialists, Capstan)
    - **3rd meeting** / 4 December 2018: Post-pilot meeting in London
    - **4th and 5th meetings /** 28 November: Project debriefing/lessons learnt meeting between Ipsos, Eurofound and Cedefop; Ipsos' presentation to Eurofound's and Cedefop's Steering Group

  In addition to these face-to-face meetings, the project teams of Eurofound, Cedefop and Ipsos discussed progress on a weekly basis via teleconference.

- **Briefings/seminars with local network partners**
  All local network partners were invited to attend a one-day seminar during the preparation phase of the survey (organised in February for the EU countries and in June for the IPA countries). Another one-day seminar for local network partners was organised just before the main stage fieldwork launch (attended by representatives of all EU countries; the local partners for the IPA countries did not take part, as these countries were not taken forward for the main survey).
    - **1st meeting** / 1 February 2018: EU28 countries in Paris;
    - **2nd meeting** / 7 June 2018: IPA countries in Belgrade;
    - **3rd meeting** / 11 January 2019: EU28 countries in Berlin.
- **Local fieldwork visits made by Eurofound**. In the early stages of main stage fieldwork, Eurofound and Cedefop performed fieldwork visits to verify survey implementation. The country teams visited were Ireland (5 February 2019), Italy (26 February 2019), Germany/Luxembourg (8 February 2019), Greece (13 February 2019) and the United Kingdom (13 March 2019).

3. Design and translation of the questionnaires for management and employee representatives

At the start of the project, the draft source questionnaires were provided to Ipsos. These questionnaires were developed by Eurofound and Cedefop. The starting point was the questionnaires that were used for ECS 2013. The 2013 questionnaires needed to be revised, firstly, to accommodate new research interests, and particularly to integrate the research interests of Cedefop, who had joined the survey as a full partner for the 2019 round, and, secondly, to accommodate the change in the mode of administration. As part of the questionnaire development, two expert meetings were organised in which feedback was collected on the questionnaire content. As well as the expert meetings, a contract was issued to Chris Warhurst and Daria Luchinskaya at the University of Warwick to provide an overview of existing employer questionnaires looking at skills utilisation and to provide a conceptual framework for the ECS 2019 questionnaires. Upon finalising the full draft questionnaires, these were sent to another set of five experts for an item-by-item methodological review.

Ipsos subjected the draft questionnaires for management representatives (MM) and employee representatives (ER) to another thorough review. Ipsos recommended slightly amending a number of questions and scales to improve clarity. The order of the questions was also reviewed. After preliminary reviews, the **draft questionnaires** were updated and agreed.

To optimise the source questionnaires in terms of translatability and to ensure that appropriate guidance could be given to translators, Eurofound and Cedefop commissioned an advance **translatability assessment** of the draft source questionnaire in French, German and Polish; this work was conducted by the translation agency Capstan. In addition, to checking whether key questions in the questionnaires were clearly and unambiguously understood by different types of respondents in different countries, Ipsos conducted 98 face-to-face **cognitive interviews** in France, Germany, Poland and the United Kingdom.

Once the advance translation and cognitive testing exercises were completed, Ipsos hosted a **questionnaire finalisation meeting** on 29 March 2018 in its offices in Antwerp. This meeting was attended by Eurofound and Cedefop, Capstan and Ipsos, with the aim to share key findings and recommendations, striking a balance between improving translatability and maintaining the content of the source questionnaire. The questionnaire finalisation also took into account 'rules of thumb' for question length and format to design a device agnostic survey.[6] The result was a revised English

[6] A device agnostic survey allows respondents to access and complete the questionnaire on any device they choose.

source questionnaire, ready for **device agnostic scripting** and **translation**. Once the translations were completed, a **pilot test** was conducted.

3.1 Questionnaire content

The questionnaires for **management representatives** (**MM**) and **employee representatives** (**ER**) were largely based on those used in the 2013 edition of the ECS, supplemented with questions on skills utilisation, digitalisation and management strategies. However, due to the switch from Computer Assisted Telephone Interviewing (CATI) interviewing to a Computer Assisted Web Interview (CAWI), question formats and formulations were adjusted to allow for self-completion of the MM and ER questionnaires by the respondents themselves. Topics covered include:

- Management questionnaire (approximately 120 items, 25 minutes duration):
  - Skill strategies (sourcing, utilisation and development);
  - Motivation and trust;
  - Work organisation;
  - Human Resource Management (working time flexibility, variable pay etc.);
  - Direct employee involvement;
  - Social dialogue;
  - Digitalisation;
  - Product market strategies, degree of competition;
  - Outcomes (productivity and financial conditions).
- Employee representative questionnaire (approximately 100 items, 18 minutes duration):
  - Resources for ER (external advice;
  - ER involvement in decision making;
  - ER involvement in training and learning;
  - Direct employee involvement;
  - Quality of social dialogue.

Reader-friendly versions of the online questionnaires for MM and ER respondents are available for download from the Eurofound website.[7] The full questionnaires used during the fieldwork will be made available in all languages in due course.

3.2 Translatability assessment and cognitive interviews

Prior to the actual translation process, Eurofound and Cedefop carried out a translatability assessment and Ipsos conducted cognitive interviews. These steps ensured that the final English source questionnaire was readily translatable.

3.2.1 Translatability assessment

In the first instance, Eurofound and Cedefop commissioned an advance translatability assessment of the draft source questionnaire in French, German and Polish. This work was conducted by the translation agency Capstan.

For the translatability assessment, a linguist for each language produced a draft translation of the source text. The translations were not intended for further use but helped to identify and describe the issues translators would be confronted with. A set of 14 translatability categories were used to label potential translation, adaptation and cultural issues identified and described. Whenever possible, the linguists suggested a translation note that could be inserted to clarify a given term or expression, or to indicate the type of adaptation that may be necessary. In some cases, alternative

[7] MM: https://www.eurofound.europa.eu/sites/default/files/ef_survey/field_ef_documents/20190816_ecs2019-mm-questionnaire.pdf and
ER: https://www.eurofound.europa.eu/sites/default/files/ef_survey/field_ef_documents/20190816_ecs2019-er-questionnaire.pdf

wording was also proposed. This new formulation suggested a way to circumvent the problem (without loss of meaning). A senior linguist at Capstan collated and consolidated the linguists' most relevant comments and integrated them with additional remarks and solutions. The results of this assessment fed into the finalisation of the questionnaire and preparation of the materials for the main translation phase.

3.2.2 Cognitive interviews

As a separate step, Ipsos conducted 98 face-to-face cognitive interviews in France, Germany, Poland and the United Kingdom. A representative mix of respondents was recruited for the cognitive interviewing, including managers and employee representatives with varying degrees of experience in their role (< 5 years, 5-10 years and >10 years), working at companies of various sizes (small, medium and large, single- and multi-site organisations), active in either manufacturing or services. The results of this exercise were reported in detail in the Cognitive interviewing report that Ipsos delivered to Eurofound and Cedefop.

A key aim of the cognitive interviews was to test how well questions worked given the shift in mode from telephone interviewing (CATI) to online self-completion via internet/web (CAWI). The cognitive interviews also looked for a range of other potential issues, including:

- Problems with comprehension (e.g. ambiguous terms or unfamiliar concepts, or questions having a different meaning for different groups of respondents);
- Questions which respondents find difficult to answer because they do not have sufficient knowledge or find difficult to recall;
- Questions where respondents feel there is a 'right' answer (leading to social desirability bias);
- Respondents including/excluding the wrong things in their answer; and
- Response categories that do not cover the likely range of responses.

Eurofound and Cedefop selected the questions for testing in the cognitive interviews, focusing on those that were new or had substantially changed from the 2013 edition. Ipsos suggested including a small number of additional questions in the cognitive interviews to gauge respondents' understanding of specific concepts and terms, and to identify whether existing response options fitted the full range of answers.

Each question was rated on a problematic scale at the country level. For each question where an error was identified, the type of error (in accordance with the CNEST error typology, see Fitzgerald et al. 2011)[8] was discussed. Using a tool such as this helped to identify the corrective action needed in order to reduce measurement error. In line with this, recommendations were also included for each question, depending on the source of the error identified (e.g. to amend the source question and / or answer categories, add a definition or example to the source, add guidance for translators to ensure that the correct translations are chosen).

3.2.3 Questionnaire finalisation meeting

Once the translatability assessment and cognitive testing exercises were completed, Ipsos hosted a 'questionnaire finalisation meeting' in its offices in Antwerp. This meeting was attended by Eurofound, Cedefop, Capstan and Ipsos' project team members, with the aim to share key findings and recommendations. Those involved in the questionnaire finalisation meeting tried to find a balance between improving translatability and maintaining the content of the source questionnaire. The result was a revised English source questionnaire, ready for translation.

[8] Fitzgerald, R., Widdop, S., Gray, M,. Collins, D,. (2011) Identifying Sources of Error in Cross-national Questionnaires: Application of an Error Source Typology to Cognitive Interview Data. Journal of Official Statistics, 27 (4) 569–599)

Based on the findings from the translatability assessment and cognitive interviews, the following aspects were revised/adapted for the final source questionnaire:

- **The definition of 'establishment' and 'company'**: In the cognitive interviews, it appeared that respondents from multi-site establishments did not always recognise or understand Eurofound and Cedefop's definition of 'establishment' and 'company' and used these terms interchangeably. Based on this finding, it was decided to provide clear definitions for the terms 'establishment' and 'company' at the beginning of the survey. Respondents were also provided with an option to check these definitions throughout the survey by including info buttons.
- **The use of the term 'employees'**: The translatability assessment and cognitive interviews showed the need to use the term 'employees' consistently throughout the questionnaire, rather than referring to 'staff' or 'workers'. The consistent use of the term employees aimed to promote consistency in answers and prevent confusion.
- **A limitation in the use of examples**: In the cognitive interviews, it was found that examples caused some respondents to mainly consider the example itself instead of the actual situation in their organisation and resulted in respondents being confused by examples that were not applicable to their organisation. Based on these findings, it was decided that for the pilot and mainstage it was best to focus on providing clear definitions of potentially difficult terms and provide examples under the info button (as opposed to showing examples directly in the main questionnaire).
- **Added answer scales**: The cognitive interviews confirmed the benefit of adding answer scales for questions in which respondents needed to provide a number. The cognitive interviews also showed the added value of encouraging respondents to give their best estimate for these types of questions. The cognitive interviews showed that respondents often found it challenging to provide exact figures. This in turn led to a high proportion of 'don't know' answers for this type of question.
- **Guidance for translators** in the form of a glossary and tips for translation, to ensure consistency across translations. This need was confirmed by the fact that some issues were detected in the translation of the materials for the cognitive interviews.

3.3 Device agnostic scripting, consistency checks and timestamps

3.3.1 Device agnostic scripting with Dimensions

The script for the MM and ER questionnaires was prepared using the Dimensions platform (UNICOM Intelligence, previously IBM SPSS Data Collection). The Dimensions software is a powerful and flexible scripting environment and is ideally suited to a device agnostic survey approach with 'elastic' capability, meaning the survey will render effectively based on the screen size of the device being used. This implies that respondents can fill out the survey on any device (e.g. desktop, laptop, tablet or smartphone).

It was decided to script the online survey in a in a device-agnostic way because the use of smartphones has increased significantly over the last years. If a survey is not scripted in a device-agnostic way, this may introduce additional bias in online surveys: (i) non-response bias smartphones users may decide not to participate; (ii) break-off bias: smartphone respondents may be more likely to break off because the survey is not mobile-friendly.

3.3.2 Consistency checks

The Dimensions platform also allows for the incorporation of consistency checks. **Hard checks** look for actual or potential illogical responses entered by the respondent at a specific question (e.g. the respondent does not know the size of the establishment) and between questions (e.g. the reported number of managers is larger than the total number of employees in the establishment), and the

respondent is prompted by an on-screen message to correct the data to an acceptable answer. In case of a hard check, the respondent is not allowed to proceed before the response is corrected.

Most checks implemented in the MM and ER online questionnaires, however, were **soft checks**. Soft checks also prompt the respondent to verify a response; however, as opposed to hard checks, respondents can 'override' the soft checks in the questionnaire and proceed to the next question. Soft checks are used when an implausible answer, as opposed to an impossible answer, is entered (e.g. the respondent answers that all employees in the establishment are managers), but they are also used to avoid having too many hard checks in the questionnaire, because the use of many hard checks could cause break-offs to increase. In line with this, a choice was made to apply soft checks when respondents tried to skip a question for which a response was required to route the respondent to the correct follow-up question. See Section 14.2.2 for the results of the consistency checks.

3.3.3 Timestamps

In a final step of the scripting, timestamps were added. Both the MM and ER questionnaire were divided in sections (blocks), and for each block, timestamps were added for the first and last question in the block. In addition to the timestamps for questionnaire blocks, the script included timestamps for 18 individual questions in the MM questionnaire and 20 questions in the ER questionnaire.

Timestamps were recorded per screen, and three variables were added in the data file: start, end and duration. The start time was recorded when respondents see a screen, on the condition that they click the 'next' button without using the 'back' button. If respondents used the back button, the start and end times recorded in the data set were those when they saw the same screen the last time (not using the back button again) and clicked the 'next' button. In the data set, it is also recorded for which question the back button was used and how many times the back button was used (see Section 14.2.2 for an analysis of back-button use in ECS 2019).

Timestamps were not recorded for all questions in the questionnaires because adding a timestamp, would require adding three extra variables to the data file (start time, end time, duration), tripling data file size. This would have made the data processing very unpredictable. Moreover, by allowing back buttons,[9] there could be an infinite number of timestamps to be recorded. The resulting data file (with all timestamps) would have been too large to handle for Ipsos' operations set-up. The data processing team uses a direct extract of the data file from the Dimensions platform for fieldwork reporting, data checks and data delivery. That is, they would have needed to pull the whole data including timestamps weekly for these tasks, even if timestamps needed to be delivered only once, at the end of the fieldwork.

3.4 Translation of the MM and ER questionnaires

The guiding principle of the translation for ECS 2019 was that the questionnaires needed to be easily intelligible for a business audience, whilst maintaining comparability across countries and respecting the overall conditions for a well-translated survey. The key to successful translation is to ensure that the themes explored by any question are conveyed in an equivalent way to all respondents, rather than a simple word-for-word translation. In effect, the priority is creating equivalent meaning rather than literal translations.

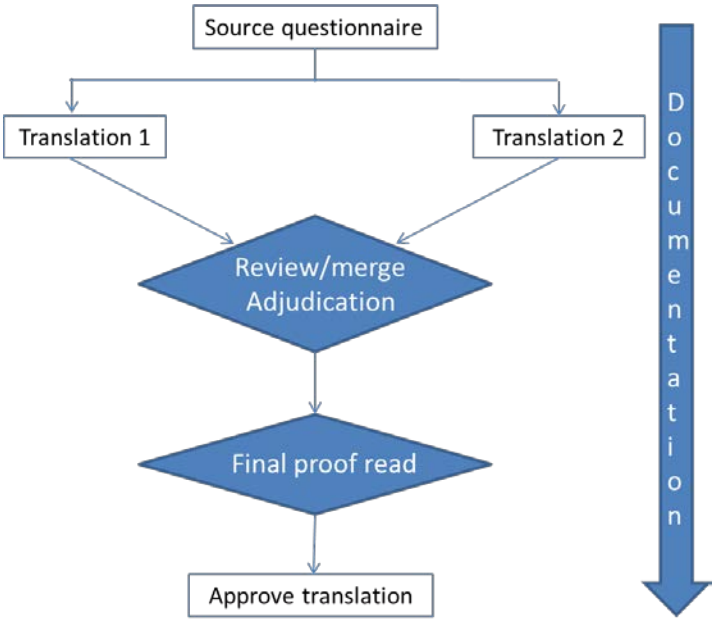
The translation process of the MM and ER online questionnaires, from translation to adjudication (and harmonisation/adaption, where applicable), started on 9 May 2018 and was completed by 6 September 2018.

[9] In the ECS, it was decided to include a back button on every page in the MM and ER online surveys. Not using back button would lead to a higher level of break-offs, as this would force respondents to just go forwards, even if they realised that they have made an error that they want to correct.

3.4.1 TRAPD translation process

The translation process of the MM and ER online questionnaires was based on the state-of-the-art TRAPD model. TRAPD is an acronym for **Translation, Review, Adjudication, Pre-Testing and Documentation**, which are the five interrelated procedures involved in producing the final translated version of a questionnaire. The TRAPD process involves two independent translations from English to target languages produced by two different translators. This is followed by an interactive session during which the two independent translations are discussed with the two translators and an adjudicator, to agree the final version. Each step of the translation process is thoroughly documented to record the reasons for specific decisions.

Figure 2: Illustration of the TRAPD translation approach



For languages spoken in more than one country (see Table 2 in Section 3.4.2), the translation process was somewhat different. Depending on how similar the language spoken in the different countries is, the translation went through either a *harmonisation* or *adaption* process.

Harmonisation was used for those countries/languages where significant differences exist in the dialects used. Separate translations were made for each country (using the standard TRAPD translation approach described above) and these local versions were then harmonised to optimise comparability, while at the same time maintaining the national dimension.

Adaptation was used for those countries/languages where there is little difference in the dialects spoken. For these countries/languages, one master translation was made, which was then adapted for local use.

Figure 3: Illustration of the harmonisation approach

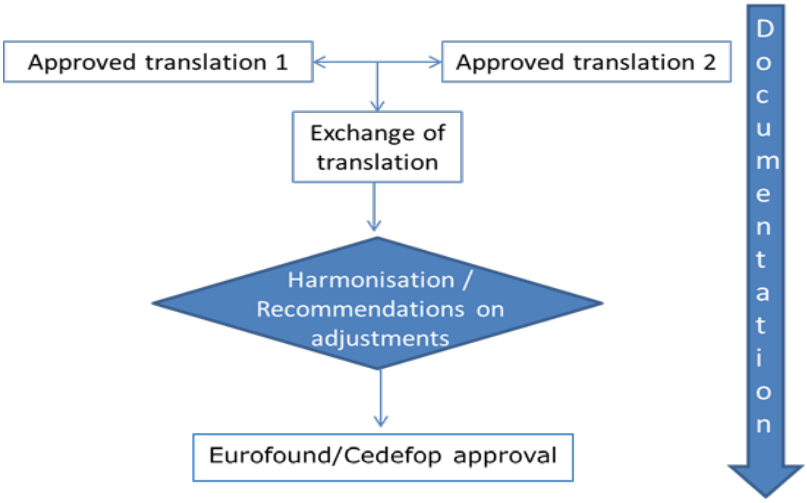
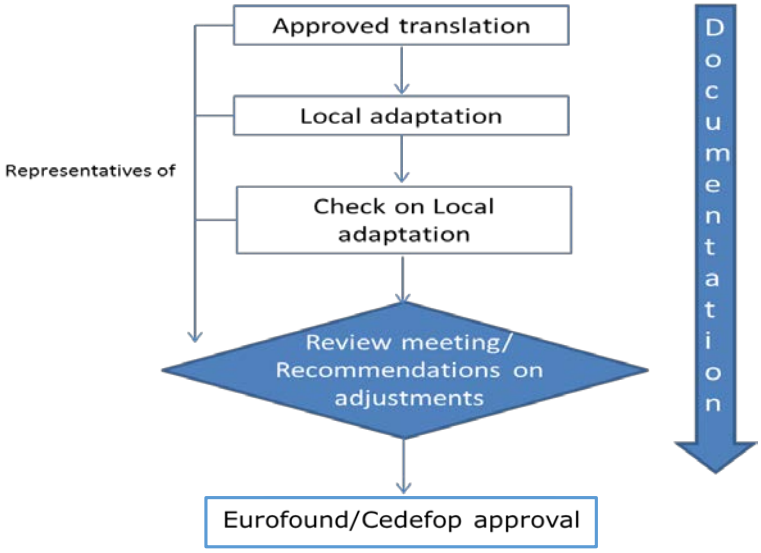


Figure 4: Illustration of the adaptation approach



Translation teams and coordination

The translation process for ECS 2019 was managed centrally by the Ipsos coordination team. They were responsible for briefing all local project managers and translators working on this project, developing all briefing materials, collecting feedback, making recommendations, and the overall documentation of the translation process.

For each target language, Ipsos appointed one translator from its local network partner agency and one translator from Language Connect, one of Ipsos' approved translation agency partners. Local network partners appointed a translator with extensive experience with survey questionnaires either from their pool of in-house translators or from their local network.

Language Connect also appointed a separate adjudicator, a particularly experienced member of staff with the combined skills of a thorough knowledge of survey research, a native speaker of the local target, and an excellent command of English. The adaptation process was, where possible, carried

out by the local project manager or a professional translator (the 'adaptor') and the adjudicator from Language Connect.

All translators and linguists submitted their curricula vitae (CVs) to the Ipsos coordination team, who ensured that each of them had the right skills and experience to work on the study. All CVs were then submitted to Eurofound/Cedefop for approval prior to commencing the translation work.

All those involved in translation were required to attend a briefing session. For all countries, separate sessions were organised for 1) translators and adjudicators involved in the standard translation approach, and 2) translators and adjudicators involved in the adaptation approach. Eurofound/Cedefop participated in some of the sessions and provided feedback to Ipsos, particularly for the first ones organised.

Trend questions

Typically, for survey translation, the objective is to keep as much as possible the same translations that were used in past waves. However, due to the switch from telephone interviewing (CATI) in past waves to online self-completion (CAWI) for ECS 2019, it was agreed with Eurofound/Cedefop that all questions were to be newly translated. The translations from the ECS 2013 were provided to translators as background information, but there was no requirement for translators to maintain the trend.

3.4.2 Languages covered

A total of 39 language versions of the MM and ER questionnaires were created. For 33 versions, translations were done from English to national languages. For languages which are spoken in more than one country, the questionnaires were adapted (in 3 cases) or harmonised (in 10 cases). Finally, the English versions for Ireland, Malta and the United Kingdom were adapted directly from the source (English language) questionnaire.

Table 2 on the next page details the list of languages used in each country for ECS 2019.

Table 2: Languages covered by translations for ECS 2019

Countries	Languages	National versions	Country	Language	Notes
EU28 Member States					
1	1	1	Austria	German	Harmonised with Germany (German)
2	2	2	Belgium	Dutch	Harmonised with Netherlands (Dutch)
	3	3	Belgium	French	Harmonised with France (French) and Luxembourg (French)
3	4	4	Bulgaria	Bulgarian	
4	5	5	Croatia	Croatian	Harmonised with Montenegro (Montenegrin) and Serbia (Serbian)
5	6	6	Cyprus	Greek	Adapted from Greece (Greek)
6	7	7	Czechia	Czech	
7	8	8	Denmark	Danish	
8	9	9	Estonia	Estonian	
	10	10	Estonia	Russian	Shared language - 'First-line' version
9	11	11	Finland	Finnish	
10		12	France	French	Harmonised with Belgium (French) and Luxembourg (French)

Countries	Languages	National versions	Country	Language	Notes
11		13	Germany	German	Harmonised with Austria (German)
12		14	Greece	Greek	Shared language - 'First-line' version
13	13	15	Hungary	Hungarian	
14		16	Ireland	English	Adapted from ENG Source
15	14	17	Italy	Italian	
16	15	18	Latvia	Latvian	
		19	Latvia	Russian	Shared language – Adapted from Estonia (Russian)
17	16	20	Lithuania	Lithuanian	
18		21	Luxembourg	French	Harmonised with Belgium (French) and Luxembourg (French)
		22	Luxembourg	Germany	Shared language – Adapted from Germany (German)
19	17	23	Malta	Maltese	
		24	Malta	English	Adapted from ENG Source
20		25	Netherlands	Dutch	Harmonised with Belgium (Dutch)
21	18	26	Poland	Polish	
22	19	27	Portugal	Portuguese	
23	20	28	Romania	Romanian	
24	21	29	Slovakia	Slovak	
25	22	30	Slovenia	Slovenian	
26	23	31	Spain	Spanish (Castilian)	
	24	32	Spain	Catalan	
27	25	33	Sweden	Swedish	
28		34	United Kingdom	English	Adapted from ENG Source
Candidate countries (IPA)					
29	27	35	Montenegro	Montenegrin	Harmonised with Croatia (Croatian) and Serbia (Serbian)
30		36	North Macedonia	Macedonian	
		37	North Macedonia	Albanian	
31		38	Serbia	Serbian	Harmonised with Croatia (Croatian) and Montenegro (Montenegrin)
32	28	39	Turkey	Turkish	

4. ECS 2019 target population and sampling frames

4.1 Target population and sample requirements

The universe represented by ECS 2019 was the population of establishments employing 10 people or more in each of the countries covered by the survey. Establishments in the NACE rev. 2 categories B to N, R and S[10] were included in the universe, while NACE rev.2 categories A, O, P, Q, T and U were

[10] B: Mining and quarrying; C: manufacturing; D: electricity, gas, steam and air conditioning supply; E: water supply, sewerage, waste management and remediation activities; F: construction; G: wholesale and retail trade, repair of motor vehicles and motorcycles; I: accommodation and food service activities; J: information and communication; H:

excluded. The unit of enquiry was the establishment. Within each establishment the manager responsible for human resources was interviewed. In addition, if a formal employee representative existed, who was responsible for negotiating working conditions with management in the same establishment, that person was also interviewed.

Table 3 provides the target net sample size in each country – which is the total number of establishments in which an online interview with the manager was to be secured. The first column for each country provides the sample size anticipated by Eurofound and Cedefop at the time of publication of the tender specifications (reference sample size) and the second column the agreed target sample sizes for mainstage fieldwork. Reductions to the originally planned sample sizes were agreed for some of the countries on the basis of a feasibility assessment following the pilot. North Macedonia, Montenegro, Serbia and Turkey were not taken forward in the main survey following the pilot assessment.

Table 3: Reference and final planned sample sizes

	Reference N	Final N		Reference N	Final N
Austria	1,000	1,000	***Luxembourg***	250	250
Belgium	1,000	1,000	***Malta***	250	250
Bulgaria	1,000	1,000	***Netherlands***	1,000	1,000
Croatia	500	500	***Poland***	1,500	1,150
Cyprus	250	250	***Portugal***	1,000	1,000
Czechia	1,000	1,000	***Romania***	1,000	1,000
Denmark	1,000	1,000	***Slovakia***	500	350
Estonia	500	500	***Slovenia***	500	500
Finland	1,000	1000 (1)	***Spain***	1,500	1,500
France	1,500	1,500	***Sweden***	1,000	1,000
Germany	1,500	1,000	***United Kingdom***	1,500	700 (2)
Greece	500	500	***Total EU28***	24,750	22,700
Hungary	1,000	1,000	North Macedonia	500	-
Ireland	500	250	Montenegro	500	-
Italy	1,500	1,500	Serbia	500	-
Latvia	500	500	Turkey	1,500	-
Lithuania	500	500	*Total IPA*	3,000	-

Notes:

(1) On the basis of a feasibility assessment following the pilot, the planned sample size for Finland was reduced to 350; however, during mainstage fieldwork, this target was increased again to 1000. (2) On the basis of the same feasibility assessment, the planned sample size for the United Kingdom was reduced to 550; this target was increased again to 700 during mainstage fieldwork.

(2) see Table 20: Planned and achieved samples, MM and ER, by country for final achieved sample sizes

transportation and storage; K: financial and insurance activities; L: real estate activities: M: professional, scientific and technical activities; N: administrative and support service activities; R; arts, entertainment and recreation; S: other service activities.

4.2 Sampling frames and reference statistics

4.2.1 Sampling frames

Table 4 lists the sampling frames that were proposed and agreed during the inception stages of the project. The first column shows the sampling frame source suggested in the tender specifications, and second column confirms whether this frame was agreed for the survey, and if it was not, provides the name of the alternative that was used. The third column shows the level of the sampling frame (establishment or company).

The choices of sampling frames reflect Ipsos' experience, the advice provided in the feasibility study report on sampling for the previous survey[11] and the subsequent work undertaken to evaluate sampling frame quality in greater detail (reported in Section 4.2.3). All the sampling frames listed in Table 4 were tested during the pilot and all were retained for the main survey in the 28 EU Member States. The pilot test is discussed in Chapter 5.

Table 4: Sampling frames

	Sampling frame – tender specifications	**Sampling frame – confirmed**	**Frame level**
EU28 Member States			
Austria	HEROLD Marketing CD / MDOffline professional	As specification	Establishment
Belgium	Infobel	Graydon	Company (change from Ipsos initial proposal)
Bulgaria	Bureau van Djik (ORBIS databank)	Dun & Bradstreet (centrally sourced) (1)	Company
Croatia	Bisnode	Annual Financial Statements Registry (RGFI), Financial Agency (FINA)	Company
Cyprus	Business Register (ΜΗΤΡΩΟ ΕΠΙΧΕΙΡΗΣΕΩΝ)[12]	As specification	Company
Czechia	Bisnode | Albertina	As specification	Company
Denmark	Experience (KOB)	Bisnode	Establishment
Estonia	e-Business Register	As specification	Company
Finland	Bisnode	As specification	Establishment
France	Cegedim CD	Direct Fichier	Establishment
Germany	Heins & Partner	As specification	Establishment
Greece	ICAP directory	As specification	Company
Hungary	KSH (Central Statistical Office)	Bisnode	Company
Ireland	Bill Moss	As specification	Establishment

[11] Feasibility study regarding methodology, design and mode of the European Company Survey, Task 2: Sampling modes and frames. Kantar Public.

[12] The register provider in Cyprus had stopped providing the size of companies and their telephone numbers. Therefore, the sampling frame was based on matching the latest database (which included company name, address and sector for in-scope size/sector businesses) to the 2011 version (the last to include size and telephone number). Additional work was then undertaken to look up details for unmatched companies.

	Sampling frame – tender specifications	Sampling frame – confirmed	Frame level
Italy	Dun & Bradstreet	Cribis	Company/ Establishment
Latvia	Statistikas uzņēmumu reģistrs/Statistical Enterprise Register	Lursoft	Company
Lithuania	Creditinfo	As specification	Company
Luxembourg	Editus	As specification	Establishment
Malta	Internal database of survey agency	Dun & Bradstreet (centrally sourced) (1)	Company
Netherlands	Handelsregister	As specification	Establishment
Poland	Bisnode	Dun & Bradstreet (centrally sourced) (1)	Company (change from Ipsos initial proposal)
Portugal	Informa D&B	As specification	Company
Romania	Lista Firmelor din Romania	As specification	Company
Slovakia	Bisnode | Albertina	As specification	Company
Slovenia	Bisnode Slovenija	As specification	Company
Spain	DataCentric	Informa D&B	Company (change from Ipsos initial proposal)
Sweden	Bisnode Sverige (PARAD)	As specification	Establishment
United Kingdom	Experian	As specification	Establishment
IPA countries			
Montenegro	Central Registry of Business Entities	As specification	Company
North Macedonia	Central Registry	As specification	Company
Serbia	Business Entities Register	As specification	Company
Turkey	Dun & Bradstreet	TURKSTAT Business Database	Company

Note: (1) 'Dun & Bradstreet (centrally-sourced)' refers to data sourced from Dun & Bradstreet by the Ipsos coordination team rather than local teams. Database counts were sourced from this supplier for a number of countries with initially unsatisfactory coverage. It was also sometimes the case that it had different numbers to a locally sourced Dun & Bradstreet solution.

Table 5: Reasons for changes in frame source or level

	Reasons for change
Belgium	For Belgium, several frames had overall good coverage; Graydon was not included in the feasibility assessment but was very similar to the other frames in terms of data source (i.e. how the sampling frame is compiled), frequency of updates, coverage and quality of firmographic information. Ipsos proposed Graydon given experience of the quality of service when working with this provider. At the time, Ipsos submitted the proposal for the survey it was believed that Graydon could be used as an establishment level sampling frame, however, although information about the establishments of multi-site companies could be provided, further investigations showed that their contact details could not be provided, and so the sampling was undertaken at the company level. For this reason, the coverage of Infobel was also checked (the frame used in the previous ECS), but it was found to have worse coverage than Graydon. The feasibility report had also noted issues with using this frame at the establishment level.
Bulgaria	At the proposal stage, Ipsos suggested Apis as a sampling frame, for various reasons, however, although this frame appeared a good sampling frame to use, upon making the detailed assessment against population counts it was shown to have poor population coverage. Dun & Bradstreet was proposed as an alternative, with good coverage demonstrated. It is worth noting that this frame had almost exactly the same number of units as Bureau van Dijk, which was suggested in the feasibility study and tender specifications.
Croatia	During the initial stages of the project it became clear that there would be practical advantages in the implementation of the sampling to using FINA instead of Bisnode, while the quality of the frames was the same, given they were based on the same source (Bisnode was a commercial frame drawn from FINA data). Specifically, the local agency was not able to purchase the full Bisnode database, unlike with FINA, complicating the sampling and survey process.
Denmark	In Denmark, more than one high-quality sampling frame was available: Experian, Soliditet and Bisnode (former NN Markedsdsata and other frames). Experian and Bisnode used the same sources and received daily information from a variety of providers – public as well as private (company information: e.g. Erhvervsstyrelsen/Danish Business Authority and Danmarks Statistik/Statistics Denmark). Bisnode was selected given previous experience of the quality of service when using this supplier.
France	Cegedim CD (the tender specification supplier) and Direct Fichier (the chosen supplier) were both commercial providers that drew data from the INSEE Sirene file, the source of business sample in France. Ipsos France had an ongoing relationship with Direct Fichier for the provision of sample, and so this provider was chosen for quality of service. The source of data and quality was the same with either provider given they accessed the same data.
Hungary	During the initial stages of the project it was discovered that CSO (Central Statistical Office) would not be able to provide any telephone numbers with the sample. Therefore, Bisnode was proposed, where this was not an issue. The frame was able to deliver good population coverage.
Italy	Dun & Bradstreet had stopped operating directly in Italy, and as such, was less suitable for the current survey. Two suppliers were considered during the preparation of the sampling, Consodata and Cribis, and the latter was found to have better quality in terms of coverage and was also the only provider of the two able to provide an establishment-level sample.
Latvia	Lursoft was proposed by the local agency during the initial stages of the project. The services of Lursoft were known to be cheaper, faster, more client orientated and flexible, and that they can provide better quality telephone numbers and additional information not otherwise available (including the number of establishments at the company, useful for screening). Additionally, Lursoft and the National Statistical Bureau of Latvia received their information from the same source – the Company Register, State Revenue Service, so coverage was similarly high.

	Reasons for change
Malta	At the start of the project the local agency advised that it would be possible (and preferable) to use a commercial database, provided by Dun & Bradstreet, rather than their own internal database, and that this would be available at establishment level. Their internal database had been preferred due to inaccessibility of the official register previously used for the survey. This frame was however assessed and had severe issues, specifically, no size information, and far too many units listed (45,000 against a population of 2,200). Instead, Dun & Bradstreet (provided by Ipsos' central contact) was used given this supplier was able to provide counts (at the company level) with more accurate coverage, and size information for part of the sample.
Poland	Bisnode was initially suggested as a sampling frame, the feasibility report noted that it had better coverage than the frame previously used, PCM (Polskie Centrum Marketingowa), with a total of 150,000 units (including the public sector). However, in practice it proved to have around 84,000 units (excluding the public sector, which will explain some of the difference), and fairly substantial under-coverage particularly of smaller establishments. As this comparison was also with company-level population counts, it called into question that the sampling frame was at establishment level (a greater number of smaller establishments would be expected than the company-level population). Dun & Bradstreet (provided by the Ipsos central team supplier) was able to provide counts (at the company level) with better coverage, and so this frame was selected.
Spain	The sampling frame was changed during the project preparation phase, as just before the pilot the previous provider (DataCentric) reported that they had removed a third of their records due to GDPR, reducing coverage significantly. The new source proposed (Informa D&B) had slightly better coverage than DataCentric had prior to the loss of records, and so was selected. This sampling frame was available at the company level (DataCentric was also planned to be used at company level).
Turkey	The Business Database was the most up-to-date frame available at the time of sampling. Based on our assessment, the frame was better than Dun & Bradstreet, but the quality below that of the frames in many other countries. For example, only about half of the entries on the frame had an up-to-date telephone number. Therefore, the frame was changed for the pilot and subsequently mainstage fieldwork did not go ahead in Turkey.

4.2.2 Reference statistics

Table 6 presents the reference statistics that were used to assess sampling frame coverage and to design and weight the survey, along with the unit of the reference statistics. Having reference statistics at the establishment level was important for the weighting to ensure the survey represents the population accurately. In 17 of the 28 EU Member States, and all four of the IPA countries, the reference statistics were available at the company level only, and so the establishment level needed to be estimated. In addition to this issue, in some countries some of the sectors were not available in the population statistics and so had to be estimated. Specifically, in Croatia, population estimates for NACE K, R and S were not available and so were based on the sampling frame numbers; in Ireland, some small cells were suppressed in the population data to prevent disclosure and so were also based on frame numbers. The approach to estimation of establishment-level statistics from the company-level is detailed in the Sampling and weighting report.[13]

[13] Eurofound and Cedefop (2020), *European Company Survey 2019: Sampling and weighting report,* European Company Survey 2019 series, Eurofound working paper, Dublin (https://www.eurofound.europa.eu/publications/report/2020/european-company-survey-2019-workplace-practices-unlocking-employee-potential#wp-101981).

Table 6: Reference statistics

	Source of reference statistics	Units
EU28 Member States		
Austria	Official "Arbeitsstättenzählung" from Statistics Austria	Establishments
Belgium	STATBEL	Companies
Bulgaria	Structural Business Statistics (non-financial enterprises/financial enterprises) from the National Statistical Institute	Companies
Croatia	Structural Business Statistics (non-financial enterprises/financial enterprises) of Croatian Bureau of Statistics; and Statistics provided by FINA (Financial Agency)	Companies
Cyprus	Business Register, CYSTAT	Companies
Czechia	Registr ekonomických subjektů (Company register), Czech Statistical Office	Companies
Denmark	Danmarks Statistik (Statistics Denmark)	Establishments
Estonia	Business Register	Companies
Finland	Statistics Finland produces establishment-based statistics (collected from the Tax Administration's business taxation file)	Establishment
France	La Base Sirene, Insee (National Institute of Statistics and Economic Studies)	Establishments
Germany	Unternehmensregister, DESTATIS	Companies/ Establishments
Greece	Company statistics, Hellenic Statistical Authority	Companies
Hungary	Business Register of the Hungarian Central Statistical Office	Companies
Ireland	Business Register, Central Statistics Office	Establishments
Italy	Structural Business Statistics, Istat	Companies/ Establishments
Latvia	Statistikas uzņēmumu reģistrs/Statistical Enterprise Register of the Central Statistics Bureau	Companies
Lithuania	Register of Legal Entities, Lithuania statistics department	Companies
Luxembourg	Démographie des entreprises STATEC	Companies
Malta	Business Register (BR), National Statistics Office	Companies
Netherlands	Office for National Statistics/Chamber of Commerce	Establishments
Poland	Baza REGON (Główny Urząd Statystyczny/Central Statistical Office)	Companies
Portugal	Sistema de Contas Integradas das Empresas (SCIE - Integrated business accounts system)/Instituto Nacional de Estatística	Companies
Romania	Statistical Yearbook (2016)	Establishments
Slovakia	DATAcube (Statistical office)	Companies
Slovenia	Number of enterprises, Statistical Office of Republic of Slovenia	Companies
Spain	Directorio de Empresas of INE (National Statistical Office)	Companies
Sweden	Bolagsverket (Office for company registration)/SCB Office for National Statistics (Business Register is a register of all enterprises, government offices, and organisations as well as their workplaces)	Establishments
United Kingdom	Inter-Departmental Business Register (IDBR)/Office for National Statistics (ONS)	Establishments
IPA countries		
Montenegro	Central Registry of Business Entities of the Tax Administration	Companies
North Macedonia	State Statistical Office of Macedonia	Companies
Serbia	Structural Business Statistics (non-financial enterprises), Statistical Office of the Republic of Serbia	Companies
Turkey	Business Registers System, TURKSTAT	Companies

4.2.3 Assessment of coverage and sample frame quality

During the initial stages of the project the sampling frames underwent a process of evaluation, considering the level of the frame (establishment preferred); the quality of the source and how up to date it was; practical considerations such as accessibility, availability of key variables and arrangements for ordering the sample (lead times, processes for drawing a reserve sample); and most importantly considering the coverage of the frame against the reference statistics (in detail across the sampling cells, both with and without telephone numbers).

Table 7 below summarises the key features of the agreed sampling frames. This includes, commentary on the coverage of the sampling frames based on comparisons between the sampling frame counts and those from the reference statistics listed above (column one); the percentage of the relevant frame listings for which a telephone number could be provided, based on what was actually delivered for the pilot (column two); whether the frame included the variables necessary for the planned stratification scheme (column three); and a summary of the adjustments that were required to the sampling to deal with the frame issues identified (column four). This final column describes adaptations required in addition to those required to counter telephone number coverage and deviations in the stratification scheme, which are covered in separate columns.

Table 7: Summary of coverage and sampling frames assessment

	Coverage	**Telephone numbers**	**Stratification cells**	**Sampling adjustments**
EU28 Member States				
Austria	58% overall, due to undercoverage (UC) at the smaller sizes (<100), believed due to subsidiaries being classed with total company counts.	98%	OK	'No size' stratum required to improve coverage
Belgium	89% overall, even across sizes, lower coverage (<50%) in NACE M and R	96%	Size class break at 200 instead of 250	-
Bulgaria	110% overall, reasonably even across cells. Overcoverage (OC) within acceptable limits.	96%	'City/town' instead of NUTS region	-
Croatia	Around 80% or better estimated with updated frame (from June 2018). Previous version: 78%, primarily due to UC in smaller companies (76% 10-49, 88% 50-249, 93% 250+.	92%	OK	Population estimates for NACE K, R, S based on sampling frame
Cyprus	Overall 116% (counts vs total population), coverage within cells to be confirmed as total includes sizeable number where size is not known (but stats authority confirms eligibility)	94%[14]	LAU instead of NUTS region	'No size' stratum required to improve coverage
Czechia	100%, the sampling frame and register were exactly the same (same source), confirmed via check of separate online sources	96%	OK	-
Denmark	98% overall, excellent across cells	93%	100+ largest size	-
Estonia	108% overall, UC (73%) and sector misclassification in 250+, other cells excellent	99%	OK	-
Finland	98% overall, excellent across cells	68%	OK	-

[14] Of the cases in the 2016 frame that could be matched to the 2011 frame (so that the size could be determined) and were of size 10+.

	Coverage	Telephone numbers	Stratification cells	Sampling adjustments
France	81% overall and similar across sizes, lower sector coverage in NACE D (<50%)	90%	OK	-
Germany	88% overall, some variation by size (79% 100-249 to 109% 500+) and misclassification by sector	100%	OK	-
Greece	45% overall across cases with size, 89% with 'no size' stratum. Worse UC in 10-49 size, some sectors (R, S at 10%, 6%).	100%	100+ largest size	'No size' stratum required to improve coverage
Hungary	105% overall, OC across all sizes (particularly larger companies). Some sector misclassification.	62%	OK	-
Ireland	93% overall, but frame/population at different levels so quantitatively imprecise. Some misclassification across cells.	100%	OK	-
Italy	110% overall, heavy OC in NACE L otherwise consistent (company-level comparison)	87%	OK	-
Latvia	97% overall, excellent across most cells	91%	OK	-
Lithuania	106% overall, some misclassification across cells.	99%	OK	-
Luxembourg	63% (excluding 'no size' cases) or 84% (including 'no size'), based on company-level counts vs company-level reference statistics, worse coverage of smaller companies.	100%	OK	'No size' stratum likely required to improve coverage (based on company-level evaluation)
Malta	108% overall if including 'no size' stratum (otherwise 33%), but with extensive variation between cells, presumably due to differences in classification between sources. Main gaps appear to be in 10-49 size.	100%	'City/town' instead of NUTS region	'No size' stratum required to improve coverage
Netherlands	87% overall (cases with size), worse UC largest establishments (500+ 79%)	95%	OK	-
Poland	123% overall, UC across most cells, more variation across sectors.	80%	'City/town' instead of NUTS region	-
Portugal	102% overall, excellent across cells	90%	OK	-
Romania	93% overall, but frame/statistics at different levels so quantitatively imprecise. Excellent across cells.	94%	OK	-
Slovakia	100%, the sampling frame and register are exactly the same (same source), confirmed via check of separate online sources	91%	OK	-
Slovenia	85% overall, uniform across cells.	94%	OK	-
Spain	97% overall, fairly uniform across cells	90%	Size class break at 200 instead of 250	-
Sweden	100% overall, perfect (same sources for frame and statistics)	98%	Size class break at 200 instead of 250	-

	Coverage	Telephone numbers	Stratification cells	Sampling adjustments
United Kingdom	84% overall, lowest for 10-49 (81%), over 90% for other sizes, some sector misclassification	99%	OK	-
IPA countries				
Montenegro	100% overall, perfect (same sources for frame and statistics)	77%	OK	-
North Macedonia	100% overall, perfect (same sources for frame and statistics), however over half of the cases have no size	94%	OK	'No size' stratum required to improve coverage
Serbia	100% overall, perfect (same sources for frame and statistics)	84%	OK	-
Turkey	100% overall, perfect (same sources for frame and statistics)	36%	OK	-

5. Pilot test

The primary objective of the pilot test, conducted between 24 September 2018 and 7 December 2018, was to provide a full dress-rehearsal of the procedures and fieldwork materials (from sampling design, CATI screener and online questionnaires to weekly reporting on fieldwork progress), with more specific objectives linked to testing alternative strategies for telephone screening, respondent definitions, and telephone and email reminders. The pilot also provided more insight into the expected CATI and CAWI yields and informed gross sample size calculations for main stage fieldwork. Finally, the pilot also intended to test the functioning of all language versions of the online MM and ER questionnaires.

5.1 Pilot sampling

The pilot sampling was required to deliver a minimum of 30 MM and 30 ER interviews per country, with the exception of the smaller countries, where lower targets were agreed (15 MM and 5 ER in Cyprus, Luxembourg and Montenegro, and 7 MM and 5 ER in Malta). The lower target in Malta was due to the very small amount of sample available.

The pilot followed the full main survey random probability sample design, to provide a full dress-rehearsal test of the procedures. In particular, it provided an evaluation of the screening procedures from company-level sampling frames. In addition, it was used to collect key information to inform the main survey design. Including information to assess (i) the yield rate of the sample, including the CAWI conversion rate, and factoring in sample eligibility; (ii) the characteristics of 'no size' cases on the sampling frame in the countries to include such a stratum; (iii) the match-rate and accuracy of looked up telephone numbers; and (iv) the accuracy of additional sampling frame information that might be used to supplement the sampling, such as the number of establishments in a company in the company-level frame countries.

A sample was first issued with the same structure as the planned main survey sample – i.e. with nine size/sector strata set as the mid-point between establishment and employee-level estimates, and selected using the same procedures including stratification.[15] The size of this sample was based on ratios of cases to achieved MM interviews of six or nine depending on country (180 or 270 cases) in the first instance, and higher, factoring in the availability of telephone numbers. Targets were not

[15] For the pilot sampling it was not possible to obtain employee-level statistics from the LFS in time, given these would need to be obtained locally (the largest size break available centrally from Eurostat for the LFS is 50+), and so the sampling was set using the ESENER-2 targets, given this survey followed the same sampling strategy and included the same strata breaks. The intention in the pilot was to select the sample in similar proportions to the likely main stage sample, to provide the most accurate estimates of the interview yield rate as possible (as the yield rate varies by size and sector the proportions are important).

set for achievement of interviews per strata, unlike in the main survey, and rather the sample was worked fully, aiming to achieve as many MM and ER interviews as possible from it. The expectation was that this sample would not quite yield 30 MM interviews, and so reserve sample was also selected.

In the countries that required a 'no size' stratum (Austria, Cyprus, Greece, Luxembourg, North Macedonia, Malta and Spain – at the pilot stage), an additional 100 cases were selected, to provide reasonably reliable eligibility and yield estimates of this stratum. In order to compensate agencies for the additional work involved in surveying these cases (given the boost in numbers, and low expected eligibility and yield), the MM target was reduced to 25 in the larger countries – Austria, Greece, North Macedonia and Spain.

The pilot sample targets were prepared on the basis of the assumptions stated above, and then this was checked against the available sampling frame, and where necessary pilot numbers were capped at a maximum of 10% of the sampling frame counts (in order to prioritise most of the sample for the main stage of the survey). The sample counts were then doubled (to provide reserve sample) and the orders placed with providers on this basis.

5.2 Pilot screening strategy for company-level frame countries

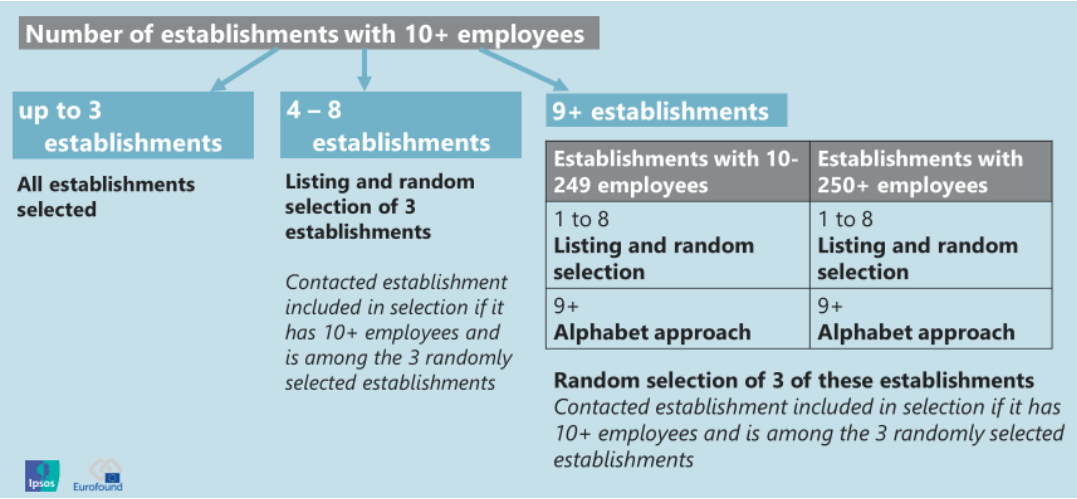
The sampling in 17 of the countries of the EU28 was planned based on a company-level sampling frame (see Table 4, this count excludes Italy). In these countries, it was necessary to have an additional sampling stage within the screener interview to select establishments, so that the survey correctly reflected the survey population. Had this not been included, the sample in these countries would be one predominantly of company headquarters, leading to a biased sample if these types of establishments differed to subsidiary establishments.

The approach to screening for establishments from company-level frames that was trialled during the pilot was to randomly select a up to three establishment from all those eligible (including the contacted establishment) and attempt to secure interviews in these establishments.

The establishment screening needed to produce comparable data across countries and facilitate an over-sample of the larger establishments. To do this, the size of the subsidiary establishments had to be captured in some way. In the previous survey, this was done by first asking respondents to provide counts of establishments in each of five size classes, then randomly selecting one size class (if more than one contained any establishments), at which point over-sampling of the larger size classes could be accommodated. Thereafter, a random selection of one establishment was taken from within the selected size class. For the current survey, this approach was problematic as it would sometimes be necessary to select establishments from more than one size class (given the move to sampling three establishments). Furthermore, asking respondents to count establishments by size class could be very demanding, especially when the company has many establishments, and so it was preferable to simplify the process and sample out of all establishments.

As in the previous survey, having participants first list the establishments in their company, and then sampling from them, is generally considered the most reliable method. However, above a certain number of establishments the listing approach becomes very demanding and it is preferable to use a different method to shorten the length of the screener. In the previous survey, this involved the programme nominating a random letter and then asking respondents to select the site at a location starting with that letter, or the next nearest letter, as applicable. This approach was repeated in the current survey. The following chart outlines the approach used in the pilot.

Figure 5: Design of multi-site sampling questions (pilot stage)



Pilot implications and adjustments

The strategy described above was tested in the pilot, with the evidence suggesting that the establishment sampling was improved, compared with what had been delivered by the previous surveys. Out of all 'additional' establishments identified in the screener, meaning establishments in addition to the contacted establishment, the contact details were provided for 45%, and the majority of these establishments were subsequently successfully contacted during the pilot fieldwork (67%). The rate of contact detail provision was slightly higher for the first additional establishment (49%), which compares favourably to ESENER-2 (37%). In addition, the rate of agreement for the second and third establishments where applicable, out of those agreeing to provide the details for the first establishment, was very high, at 91%.[16] This suggested that the strategy of selecting additional establishments from the larger multi-site companies, to reduce the weights, was effective.

However, based on interviewer feedback from the pilot, the approach was difficult to manage if the contacted establishment was not selected in the screening sampling step. This would happen relatively rarely, as it could only apply to companies with four or more sites, however, it was raised as an issue, particularly given that the contact strategy to be adopted for the main survey focused on completing the screener with the MM respondent in order to get their buy-in for the survey. In the pilot approach, it could happen that the MM participant was willing to do the interview but then their establishment was not selected. Although rare, it was felt that response to the screening (provision of additional contact details) could be improved if MM participation could be confirmed first, as could response to the ER identification questions and therefore the screener was adjusted accordingly for mainstage.

5.3 Telephone screener

In ECS 2019, with a push-to-web design, establishments are first contacted via telephone to complete a screener interview. During the screener interview, eligibility is assessed and a management respondent, and, where possible, an employee representative is identified.

5.3.1 Scenarios tested in the pilot screener questionnaire

In previous editions of ECS, contact details of the employee representative were collected during the management interview. In ECS 2019, it was decided to attempt to identify this person at the

[16] The overall rate is a bit lower at 45% as all the cases which said 'no' to the first establishment are automatically 'no' to the 2nd and 3rd where applicable.

screening stage (when establishments are contacted and the first person contacted, e.g. a receptionist, a support or administrative staff member, are asked an initial set of screening questions to assess eligibility). The advantages of this approach are:

- there may have been an element of selection bias in the previous approach, whereby management interviewees may have had an interest in nominating someone favourable to the company or not nominating someone at all if favourability was a concern; and
- this would allow more fieldwork time for the employee representative interview to be completed and so should maximise the response rates with this group and enable the fieldwork to be completed on time.

One potential drawback of this approach is that gatekeepers in the initial screening interview may have less knowledge of the company structure and be unable to respond to the questions in the screener questionnaire, especially the questions about employee representation. It was also hypothesised that a direct contact with the management respondent may encourage participation in the online interview.

Two approaches were trialled in the pilot:

1. In the first scenario, interviewers aimed to complete the screener questionnaire with the first person contacted; this could be a receptionist, a support or administrative staff member.
2. In the second scenario, the interviewer first identified the management respondent (i.e. at the start of the screener, the interviewer asked to speak to/be transferred to the management respondent – see next paragraph for the definition used), and aimed to complete the screener questionnaire with the management respondent.

In addition, the pilot trialled two approaches during the CATI screener for the type of management respondent:

1. Most senior person in charge of personnel in the establishment, and
2. Someone responsible for HR and personnel issues in this establishment that would be able to answer questions about workplace practices with regard to work organisation, skills use, human resource management, direct employee participation and social dialogue.

Combining the experimental conditions for the respondent in the screener questionnaire, and applying the definitions for the management respondent lead to the following four test scenarios:

- Scenario 1: CATI screener questionnaire with contact person/senior MM completes online questionnaire
- Scenario 2: CATI screener questionnaire with contact person/ non-senior MM completes online questionnaire
- Scenario 3: CATI screener questionnaire with senior MM & online questionnaire completed by senior MM
- Scenario 4: CATI screener questionnaire with non-senior MM & online questionnaire completed by non-senior MM

5.3.2 Outcomes of the pilot testing

An analysis of yield rates for the pilot CATI screener interview and conversion rates to the online survey for the four scenarios described in the previous section showed that it was harder to recruit managers as respondents for the screener, but the CAWI conversion among this group was higher than for other respondent groups. For example, when a CATI screener interview was completed with a senior manager (Scenario 3), 31% was successfully 'pushed to' the online survey. In comparison, in the scenarios where the screener interview could be completed with the first person contacted, this figure varied between 19% and 21%.

After controlling for the fact that a large number of screeners in Scenarios 1 and 2 were completed with the designated management respondent, the differences in the success rate of the push-to-web approach were considerably larger than observed when not controlling for this fact. For example, in countries using an establishment-based frame, 31% of management respondents who completed the screener interview, also completed the online survey; however, among management respondents who did not complete the screener interview and for which their contact details were secured by the gatekeeper, just 7% completed the online survey. No differences were observed in conversion to CAWI between the two profiles for the management respondent (senior MM vs. non-senior MM).

Based on these findings from the pilot, it was agreed to maintain only Scenario 3 for the mainstage (CATI screener questionnaire with senior MM and online questionnaire completed by senior MM). A choice was made for Scenario 3, and not Scenario 4 (non-senior managers), because no differences were observed in CAWI conversion, whilst there were some indications in the data that the quality of the data collected in the online survey was higher when the most senior person in the establishment responded to the questions.

5.4 Pilot achieved samples, CATI and CAWI yields

The pilot samples achieved fell short of the targets in most countries, despite following the approach set out in the sections above and working the sample fully. The reserve sample was used in many of the countries in an attempt to improve numbers, except for those where it was agreed that this sample should be held back to maximise that available for the main survey.

5.4.1 CATI yield and MM targets

In general, the pilot outcomes were in line with expectations for the CATI screener. CATI yield ratios ranged from 1:1.7 to 1:13.6. Czechia, Finland, Poland and Slovakia all had yields worse than 1:8, above the worst yields seen in the previous survey. Yields were worse than expected in most countries for the CAWI conversion from successful screeners. Of the 28 EU Member States, 18 countries had CAWI ratios above 3: Bulgaria, Cyprus, Denmark, Estonia, France, Greece, Germany, Hungary, Ireland, Italy, Lithuania, Luxembourg, Poland, Portugal, Slovenia, Slovakia, Spain and the United Kingdom.

The pilot findings made it clear that, in the majority of countries, it would not be possible to achieve the population mid-point-based sampling targets in all cells, particularly in the large size class strata, given limitations on the amount of sample available. Based on the pilot outcomes, Germany, Greece, the Netherlands and the United Kingdom were the only countries expected to be unaffected by this issue. In Cyprus, Malta and Slovakia, the pilot suggested that a full census of the sampling frame would be required to deliver the target, meaning the sampling would be in proportion to the sampling frame. The remaining countries all required some reductions in the targets in the largest size strata (and sometimes also the medium size strata) to set achievable targets.

5.4.2 ER targets

In relation to the ER interviews, even after using reserve and going over the MM target in many of the countries, it was not possible to hit the planned target number of interviews in any country. This was due both to the low yield rates, which affected both interview types, and a lower ER identification rate than in previous surveys.

The pilot data showed that there was a large variation across countries in awareness and willingness to provide information about the presence of employee representation, and willingness to provide contact details of employee representatives. In order to increase the number of completed ER interviews during main stage, a number of measures were implemented after the pilot to increase the likelihood to collect contact details of employee representatives. These measures are discussed in Section 5.3.2.

5.5 Email and CATI reminders

To reduce non-response in the online surveys, up to three email reminders were sent to MM and ER respondents in the pilot. In addition to the email reminders, MM and ER respondents were contacted by telephone to encourage cooperation and remind them to complete the online survey.

5.5.1 Email reminders

In the pilot survey, two regimes were applied for sending the email reminders: three working days between reminders and five working days between reminders; respondents were randomly assigned (by the CATI script in-situ) to one of these two regimes. Both regimes imply that email reminders are spaced apart, but in the first regime, the email invitation and reminders are sent on different days of the week, while in the second regime, the email invitation and reminders are each time sent on the same day of the week.

5.5.2 CATI reminder

The timing of the CATI reminder in the pilot was decided based on the outcome of the screener interview. If the interviewer spoke to the MM/ER respondent during the screener call, the CATI reminder was attempted after the 2nd email reminder. If the interviewer had not spoken to the MM/ER respondent during the screener call, respondents were randomly assigned (by the CATI script in-situ) to one of two groups:

- Group 1: CATI reminder following immediately after email invitation
- Group 2: CATI reminder only after 2nd reminder email

There was also a third group consisting of respondents for whom interviewers were not able to get a (work) email address during the screener interview. These respondents received a CATI 'invitation' call, and when interviewers were able to collect an email address during that telephone call, an email invitation was sent.

5.5.3 Outcomes of the pilot testing

In terms of response rates and response quality for different regimes implemented for the reminder strategy, the pilot data showed mainly small differences, making it difficult to draw firm conclusions for changes to be implemented for the mainstage fieldwork.

Nonetheless, some possible areas of improvement were detected. Notably, scheduling the CATI reminders turned out to be a difficult exercise for many fieldwork teams, with as consequence that a number of CATI reminders were not scheduled according to the experimental conditions. For roughly 1 in 10 CATI reminders, the respondent was only reached by telephone after the 3rd email reminder had been sent. Moreover, 40% of the CATI reminders were not successful, meaning that the interviewer did not speak to the respondent. Both issues resulted in a longer than intended break in between reminder attempts.

With the aim to improve the effectiveness of the email reminders for the mainstage, during the main stage, email reminders were also sent during the period that the CATI reminder should be scheduled. The number of email reminders was also increased from three to four reminders. As an outcome of the pilot testing, some changes were also made to the content of the email reminders. For the main stage, it was decided to refer back to the customised report in the first email reminder for MM respondents, while the first email reminder for ER respondents would stress the importance of the ER survey in shaping national and European decision-making. In the third email reminder, a reference to the number of completed interviews in the 3rd ECS conducted in 2013 was added and, finally, to increase the tone of urgency, the last email reminder mentioned a date by which the online survey should be completed. For more details, see Section 8.1.1.

5.6 Pilot test of MM and ER questionnaires

5.6.1 Pilot findings of the manager survey

In total, 2,772 management representatives were invited to complete the MM pilot online survey. During the pilot fieldwork period, there were 1,086 visits to the survey landing page (participants who at least saw the language selection screen, landing page 1 or 2, or the first page of the actual survey). From these visits, 1,001 respondents started the survey (i.e. answered the first question); out of which 689 completed the full questionnaire. Some 83 cases were terminated by the script due to ineligible/sector, no answer or hard checks, or technical issues such as bad connection. Overall, 30% out of all visits resulted in break-offs.

More than half (54%) of these break-offs occurred at either the two landing pages or in Section 1 of the questionnaire, in which respondents were asked about how many people work in their organisation, the main section of activity of the organisation, and since when the organisation was carrying out this activity. The remaining break-offs were spread relatively evenly across the sections in the questionnaire. This is in line with what is generally observed for online surveys: most break-offs occur at the beginning of surveys. Hence, this was not deemed a particular reason for concern.

Also, when looking at the question level, most of the break-offs happened at the start of the survey. There were two main exceptions in the manager survey: the SKILLMATCH[17] and MMEPIN[18] questions, both located later on in the survey. In the SKILLMATCH question respondents had to indicate the percentage of employees in their organisation who have the right, a higher level or a lower level of skills than needed in their job. This question also caused some other quality issues and was rephrased for the mainstage, see further below. In the MMEPIN question, respondents had to indicate whether in their opinion, since their company was set up, employees had directly influenced management decisions in areas such as the organisation and efficiency of work processes, recruitment, dismissals, etc. The MMEPIN questions was shortened for the mainstage, to include two answer items less.

An analysis of item non-response ('don't know' or 'no answer') showed two questions with a relatively high item non-response of around 10%. This applied to the question on whether wages of employees were set by a collective agreement (CANAT: A collective agreement negotiated at the national or cross-sectoral level, CAREG: A collective agreement at the regional level, and CAOCC: A collective agreement negotiated on behalf of employees with a specific occupation) and the question on how many employees received a specific type of variable pay (VPGRPE: Variable extra pay linked to the performance of the team, working group or department ; VPPRSH: Variable extra pay linked to the results of the company or establishment). For the mainstage, the translation of the question on the collective agreement was reviewed in all languages, and corrections were applied where needed.

The proportion of respondents with higher than 10% item non-response was highest in Lithuania (29%), followed by Bulgaria (19%), and Germany and Spain (both 14%). As the high level of item non-response in Lithuania could have been caused by potentially low quality of the translation, the Lithuanian translation of the entire questionnaire was reviewed for the mainstage survey by the local country manager, with the help of the adjudicator where needed. This review, however, did not lead to any substantial changes in the translation, and it was concluded that the high level of item non-response in Lithuania was not linked to the quality of the translation.

[17] 'Please think about the skills that employees of this company need to do their job. 1) What percentage of employees have a lower level of skills than is needed in their job?; 2) What percentage of employees have a higher level of skills than is needed in their job?; 3) What percentage of employees have the skills that are about right to do the job?'

[18] Please think of the period since the beginning of 2016. In your opinion, to what extent have employees directly influenced management decisions in the following areas? 1) The organisation and efficiency of work processes: 2) Dismissals; 3) Training and skill development: 4) Working time arrangements; 5) Payment schemes.'

A question-level analysis of the manager survey data showed that the ranking questions (TRAINLEARN[19], HIR[20], PMSTRATLP[21]) caused a relatively high number of error messages to be displayed to respondents. Also, showing these error messages only rarely prompted respondents to 'correct' the ranked answer. Moreover, it took respondents relatively long to answer these questions and, in the debriefing questionnaire (added at the end of the pilot questionnaire), respondents frequently indicated that they found these questions hard to answer because the answer items were equally important or non-applicable to their organisation. Few respondents indicated, on the other hand, that they found the instructions for the ranking questions unclear. This suggested that respondents who ignored the error message might have done so because they believed their response was 'right' or that they on purpose ranked two or more answer items the same. Based on these findings, it was decided to only show an error message to warn respondents who entered a number that is not equal to 1 to 3 (or 4, depending on the question). No error messages were shown in the mainstage when respondents entered the same number multiple times.

As noted above, the SKILLSMATCH question, in which the three answer items needed to add up to 100%, also caused difficulties for respondents. In the pilot, a sizeable proportion (15%) of respondents provided a response that did not add up to 100% and did not correct this after seeing the error warning. To address this issue, it was decided to redesign this question for the mainstage, by: 1) adding an explanatory intro[22]; 2) by allowing respondents to answer with an exact number of employees, as well as by providing a percentage; 3) by adding an auto-sum 'total' field, allowing respondents to see if the values they have entered sum to 100% (if replying with a percentage) or to the total number of employees (if providing a number of employees) and 4) by mentioning up front that the three responses need to add up to 100% or to the total number of employees.

5.6.2 Pilot findings of the employee representatives survey

In the pilot study, 434 employee representatives were invited to complete the ER online survey. There were 181 visits to the survey landing page of the employee representatives survey. From these visits, 165 ER respondents started the survey (i.e. answered the first question), and 117 completed all questions. Some 16 cases were terminated by the script due to ineligible (not an employee representative), no answer or hard checks (no answer on ERNOCONFIRM[23]), or technical issues such as bad connection.

Based on the pilot findings, the following changes in the ER questionnaire were implemented:

1. Given the large proportion of item non-response to ERHOURS (asking respondents about their contractual working time in hours per week), respondents in the mainstage were shown a response scale with 4 or 5 banded categories, rather than being asked to respond with an exact number of hours.
2. Similarly, given that large proportion of item-non-response to the ERBCMEETOUT and ERBCONLINE questions (asking respondents whether the employee representative body in

[19] 'What are the most important ways through which employees in this company/establishment can become more skilled at their jobs? Please order them from most to least important, entering 1 for the most important down to 3 for the least important.'

[20] 'When recruiting new employees, how important are the following four characteristics? Please order them from most to least important, entering 1 for the most important down to 4 for the least important.'

[21] 'How important are the following four factors for the competitive success of this company/establishment? Please order them from most to least important, entering 1 for the most important down to 4 for the least important.'

[22] 'Some employees have about the right skills required to do their job, while others have a lower level of skills than needed and would need additional training. There can also be employees who have a higher level of skills than is needed in their job and can take on more demanding duties. Please think about the employees in this [company/establishment], their current skills and the skills they need to do their job.'

[23] 'In what role do you represent employees at this [company/establishment]?'

their organisation communicated with employees by meetings outside working hours and through engaging in discussions through social media), an extra info button was added in the mainstage to explain the meaning of 'meetings' in the context of this question, while for the use of social media a separate set of questions was designed.

5.6.3 Post-pilot translations

Based on pilot survey findings, a number of changes were made to the MM and ER questionnaires. The pilot outcomes also suggested that the translation of a number of questions in some countries should be verified. All post-pilot changes to the translations were implemented by the local agencies' translators and the local country managers. If the country teams experienced difficulties with updating or verifying the translations, they had to revert to the adjudicator for the applicable country and language for advice.

6. Sampling strategy

6.1 Stratification

Three explicit sector strata were included in the sampling for ECS 2019: NACE B–E (production), NACE F (construction) and NACE G-S (services). In the previous survey, NACE F was grouped with NACE B-E; this change was implemented to control the size of the NACE F sample, given cases in NACE F had a lower response rate than NACE B-E cases in the previous survey. In addition, the three previously used size class strata (10-49, 50-249 and 250 or more) were used, giving a total of nine explicit strata. In Denmark and Greece, the largest size class available in the reference statistics was 100 or more, meaning the sampling was set across the size strata 10-49, 50-99 and 100 or more. In Belgium, Spain and Sweden, the nearest category break to 250 employees was 200, giving size sampling strata of 10-49, 50-199 and 200 or more.

Sampling targets were set across the nine strata as the mid-point between establishment-level and employee-level population estimates. The establishment-level proportions were based on the reference statistics (see earlier). Company-level reference statistics were used to set the sampling targets in countries where this was the only level available. The employee-level proportions were based on the Labour Force Survey (LFS), which is available for the countries of the EU.[24] As such, the sampling is disproportional to both the establishment-level and the employee-level population. The targets were then reviewed considering the number of cases available on the sampling frame and predicted yield rates, and adjustments were made by capping cells where the targets could not be delivered.

In addition, a layer of implicit stratification (i.e. systematic sampling to ensure the selected sample is in proportion to the population) was included in the sampling by top level NACE code and then region, to ensure that the sample was selected in proportion to the sampling frame on these factors. The region variable was based on what was available on the sampling frame; for the largest countries, ideally being based on NUTS1 or NUTS2, and the smaller countries, NUTS3 or smaller (given the smallest countries contain fewer, or just one, of the higher-level NUTS regions).

Table 7 highlights some variation in what is available on the sampling frames on region. Importantly, this apparent lack of consistency between countries did not compromise the sample design, given region was placed last in the stratification scheme. A total of 45 strata preceded region, as it followed (i) sector category by size category (9 strata) and (ii) top-level NACE code (15 strata in total

[24] The LFS data available centrally from Eurostat covers only one of the planned size strata: 10-49, with a single category available for 50 or more. The national agencies were asked to seek a more detailed breakdown locally, and for many this confirmed that the LFS does not collect any additional detail. In 11 of the countries, including the largest, Germany, it was possible to obtain a split at the 250 level, either based on establishments (seven countries) or companies (four). For the other countries, the Eurostat LFS 50+ figures were apportioned based on the average across those for which the split was available.

distributed across sector groupings). This had two implications. First, this placement meant that region had a lower priority than the other variables, and less of an effect on the stratification, the order of the strata determining the priority. Second, the placement meant that the sampling could accommodate a variety of different numbers of region categories without affecting the other stratification factors. [25]

Error in the sample in Slovenia

In Slovenia, there was an error at the sample selection stage for the main stage which affected the quality of the achieved sample for that country. The sample provider in Slovenia, Bisnode, omitted large numbers of cases in individual NACE service sectors (cases in NACE K-S were omitted) when it delivered the sample to Ipsos. Upon receipt of the sample, Ipsos checked that the total number of sampled services at the stratum level was correct and that there were observations in all sector cells but not the distribution across the NACE sectors (the implicit stratification levels). This omission was not picked up during fieldwork monitoring either as reporting focused on the stratum level not the categories within stratum cells. The problem was detected during the weighting process, by which time it was too late to rectify it. The error meant that 19% of the intended target population in Slovenia was not included in the sample, meaning that the overall Slovenian sample is biased as is the Slovenian services sector sample. Although the omission of K-S in Slovenia does also affect the EU estimates, calculations have shown that - due to the size of the country - this bias will not exceed 0.1 percentage point. [26]

6.2 Adjustments to the standard approach

Adjustments to the sampling strategy were required in a number of countries to maintain quality standards (see Table 7 for a summary).

6.2.1 Improving coverage via inclusion of 'no size' stratum

In five EU Member States, a 'no size' stratum was required to improve sampling frame coverage (Austria, Cyprus, Greece, Luxembourg and Malta, see Table 7). This strategy involved including cases in the survey where there was no size information (number of employees) listed on the sampling frame, given that if these cases included establishments with over 10 employees then coverage would be increased. In all of these countries, the coverage evaluation suggested frame coverage of under 80%, or, in the case of North Macedonia, both the sample and reference statistics included a sizeable proportion (over half) of cases without the size (so inclusion of the 'no size' stratum reflected the reference population). It is important to note that including a 'no size' stratum in the survey adds to survey costs, and as such the strategy was used selectively (i.e. only where necessary to improve quality and shown to be effective at doing so).

6.2.2 Improving coverage with telephone number look-ups

The coverage figures reported were based on a comparison of all of the cases on the sampling frame, including those for which the provider did not hold a telephone number. Of course, these cases could not be contacted unless a telephone number could be identified. Excluding cases without a telephone number from the survey would have reduced survey coverage further, in a way that could be biasing, given it would be reasonable to expect that cases without telephone numbers might be different in ways that were related to survey measures. In addition, it is good practice to

[25] In order to be fully effective a stratified sample should include sampled cases in all strata. This was assured in the majority of countries at the second level, with 135 strata. At the level of region there were more likely to be some empty strata, depending on the number of region categories (for example with 10 region categories there would be 1,350 strata), reducing the benefit of the stratification at this level.

[26] Based on a worst-case scenario of estimating the size of the sectors K-S in the EU.

look up telephone numbers during a survey where the initial telephone number turns out to be invalid.

Ipsos used Dun & Bradstreet as an external source for looking up missing/wrong telephone numbers, a successful strategy according to previous experience from other surveys. The exception to this was countries where Dun & Bradstreet was the source of the sampling frame itself.[27] The pilot demonstrated that in most countries the proportion of delivered cases with a telephone number was high. The rate of telephone number inclusion in the pilot was over 90% in all EU Member States except Finland, Hungary, Italy and Poland (see
Table 7). It also showed that a high level of case usability[28] could be attained following look-ups of missing numbers using Dun & Bradstreet. Here, most countries were above 95%, except for Croatia (92%), Finland (65%), Italy (84%), Poland (81%) and Slovakia (94%) out of the EU Member States. In France, Portugal and Spain, the look-up procedures were not tested in the pilot as the sample provided was mistakenly of cases with a telephone number only, but similarly high rates were expected. The Dun & Bradstreet provided telephone numbers also resulted in an acceptable bad number rate (of 17%, compared with the average of 9%). Dun & Bradstreet was not able to process sample from Cyprus, due to the alphabet used, and the telephone numbers had to be looked up manually by the local team. Based on the pilot. this strategy was maintained, supplemented by manual look-ups by the local agencies in countries with lower usability rates.

6.2.3 Working with company-level sampling frames

In Italy, the sampling frame provider was able to sample cases at the company level only, but provided an additional file containing all the subsidiaries associated with the selected companies. Prior information was not available on the number of establishments per company, however, the provision of the additional establishments meant that the subsidiaries could be selected in advance, instead of via the screening questions. This process circumvented the need for establishment screening and collection of contact details, a source of non-response in the pilot. To provide a test of procedures, the same sampling rules were applied in Italy as in the other company-level frame countries, of selecting up to three establishments per company (in advance of fieldwork). The pilot analysis showed that the pilot sample in Italy had the highest proportion of subsidiaries of all the company-level sampling frame countries, demonstrating that the approach was effective at bringing in this type of establishment. This approach was therefore used in the main survey in Italy.

6.2.4 Adjustments for stratum jumpers and general sample management

The sampling was designed to achieve target numbers of interviews in the sector and size stratification cells. The issued sample was selected using the sampling frame information for NACE sector and size of company with the aim of achieving the target number of interviews, within a certain tolerance level, for each cell. Ideally this would be achieved by controlling the size of the issued sample in each cell, and our strategy for this is discussed later in this section. However, it is inevitable that some of the targets will be met while there remains issued sample that is still 'live'.

To manage this issue, many telephone surveys of businesses include a 'stopping rule', whereby cells in which the target has been reached are allowed to be closed, and any remaining sample that belongs to that cell according to the sampling frame information is no longer dialled. There are reasons, however, to believe this practice could bias the sample, both because of the presence of 'stratum jumpers' (establishments that end up in a different analysis cell to the one in which they were sampled), and because cases that are abandoned after being dialled are more likely to be harder to reach. Stratum jumpers are a problem because they result in some of the cells filling up

[27] This was also considered an issue where Bisnode was used as the sample source, applicable to Denmark and Hungary, given Bisnode and Dun & Bradstreet were understood to be based on the same source.

[28] Usability rate refers to the proportion of cases that could be issued for fieldwork as they had a telephone number that fit the expected format.

more quickly than others, i.e. those which more of the stratum jumpers move to, meaning the stopping rule is applied disproportionally. This adjusts the profile of the sample, and there is evidence that establishments that 'jump' could be significantly different to establishments that had the correct classification on the sampling frame, potentially biasing the sample.

Two strategies were used in the mainstage to deal with these issues. The first was to alter the profile of the issued sample, taking into account information from previous survey iterations that showed the relationship between the sampling frame and reported information, and also the response rates in each cell. This adjustment was only considered for countries that used the same sampling frame as the one used in the 2013 edition.[29] The response rates were also adjusted within each country to the overall pilot levels across the strata, for both the screener (CATI) and MM interview (CAWI) stages, but basing the variation between cells on the previous survey data.

The second strategy was to manage the sample responsively during fieldwork, using observations from the early stages of fieldwork to inform decisions on sample release in the later stages. This was achieved by firstly randomly allocating the gross sample into batches and loading these iteratively during fieldwork. And secondly, by reviewing the fieldwork outcomes on a fortnightly basis during fieldwork and removing, from batches of sample not yet loaded, strata that were predicted to reach target based on the sample loaded.

6.2.5 Screening strategy for company-level frame countries

As noted in Section 5.2, the sampling in 17 of the countries of ECS 2019 was based on a company-level sampling frame. In these countries, there was an additional sampling stage within the screener interview to select establishments, so that the survey correctly reflected the survey population. The additional sample stage consisted in participants first listing the establishments in their company, and then sampling from them. Given that above a certain number of establishments, the listing approach becomes very demanding, a 'random letter' was used for companies with more than eight establishments. This involved the programme nominating a random letter and then asking respondents to select the site at a location starting with that letter, or the next nearest letter, as applicable.

The strategy described above was tested in the pilot, with the evidence suggesting that the establishment sampling was improved, compared with what had been delivered by the previous surveys. However, given that it was difficult to manage the selection step if the contacted establishment was not selected in the screening sampling step, the following changes to the establishment screening were agreed, affecting the 17 establishment screening countries:

1. that the contacted establishment would be selected automatically, in addition to up to another two establishments, and
2. the order of the screener would be revised to improve its flow, to first recruit the MM and collect the ER contact details if applicable, followed by the sampling of further establishments (in the pilot the sampling step was completed first in this sequence).

Figure 6 outlines the approach for multi-site sampling used in the main stage. Figure 7 shows the placement of the multi-site sampling questions in the main survey. In the pilot survey, these questions – the navy-blue block – were placed directly after the eligibility questions.

[29] Across EU Member States, in 15 countries, the adjustment could be made based on the previous ECS and two on ESENER-2. In 11 countries, no adjustment could be made.

Figure 6: Design of multi-site sampling questions

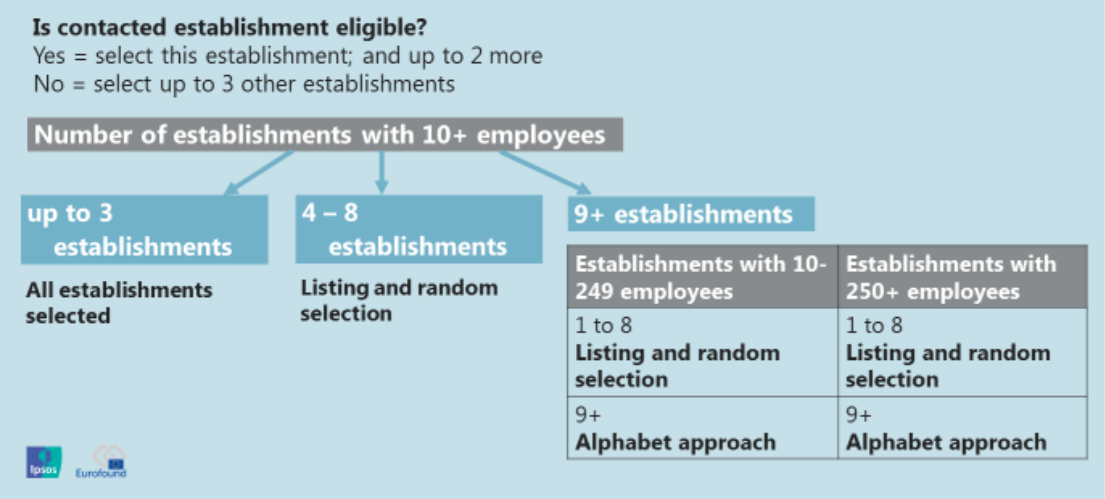
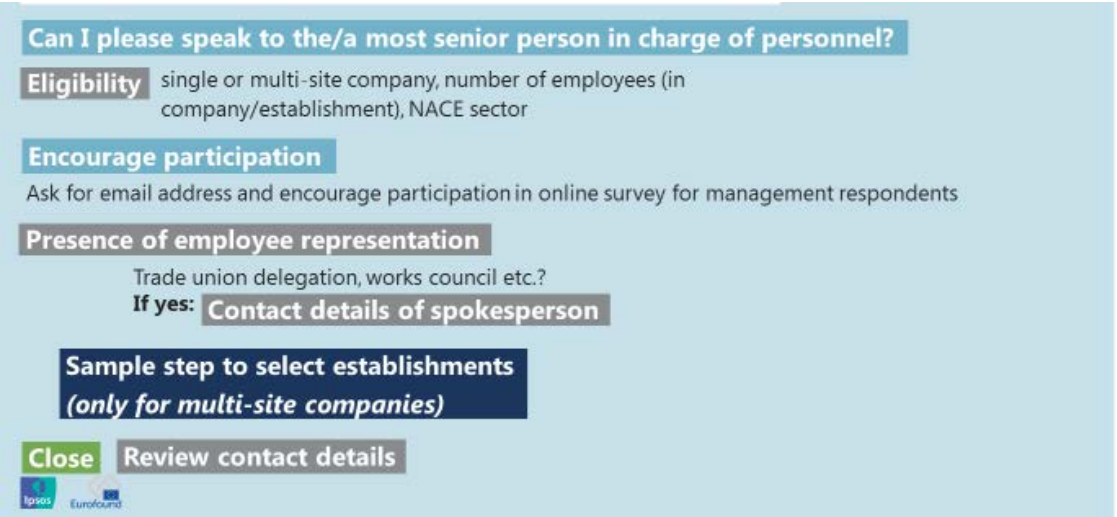


Figure 7: Structure of the ECS 2019 telephone screener



6.3 Size of the gross sample

At the start of the survey, it was necessary to estimate the size of the gross sample that would need to be requested from the sampling frame providers to deliver the planned sample sizes. Typically, one would be able to base the assumptions for these calculations on the outcomes of the previous survey, given important features that influence the response rate are held constant between survey iterations (such as the survey topic, sponsor, informant, questionnaire length, etc.). For ECS 2019, this was less straightforward given the change in methodology. To consider the required size of the gross sample the screening and CAWI conversions were considered separately, with the former informed by the outcomes from the previous survey, and the current survey pilot, and the latter informed by the current survey pilot only.

Smaller than anticipated gross samples in Cyprus and Malta

In **Cyprus**, the main stage fieldwork assumptions were set based on the expectation of a gross sample size of 12,726 companies (3,415 with employee size available, 9,311 without). This was because the sampling frame used for the pilot was based on an outdated list of companies in Cyprus (from 2016), including those companies with less than 10 employees. At the time that the pilot was conducted no other sampling frame was available. Before the start of the main stage fieldwork, Ipsos' partner agency in Cyprus suggested that an application for a new sampling frame containing

only eligible companies might be successful. Eurofound and Cedefop agreed to proceed and the outcome was that a new sampling frame was received, containing only cases that the statistical authority confirmed as having 10 or more employees (a total of 4,471 companies). No size or telephone number details were provided, and so the partner agency in Cyprus undertook to look these details up, resulting in finding contact details for 3,753 cases and the size for 3,252 cases. The 'no size' cases now included 501 cases without size, because the case could not be matched to the 2011 database (but the telephone number was found), and 926 cases where the size in 2011 was 0-9 employees. All cases were included in the survey given the statistical authority deems the company to have 10 or more employees at the time when the sampling frame was received. The partner agency in Cyprus was not able to find telephone numbers for the remaining 718 cases, having exhausted all options. At the end of this matching exercise, the final gross sample was much smaller than anticipated, but it was expected to be of a higher quality as it included new companies, unlike the previous sample.

The sampling frame in **Malta** included 'no size' cases to boost coverage and sample size achievement. At the pilot stage, the total number of cases on the Dun & Bradstreet (D&B) sampling frame, including those without size (69% out of the total number of cases), was similar to the population (2,346 companies compared with 2,178 according to the available reference statistics), meaning many of the cases were expected to be eligible, which was confirmed by the pilot. When the sample was received from D&B for the main stage fieldwork, the available numbers had reduced, to a total of 1,870, against 2,346 expected less cases used in the pilot. The full reduction was to cases without size, given those 'with size' had only changed by two cases. D&B explained this reduction as due to ongoing cleaning of the data.

6.4 Main stage sample management

In most countries, a sample of 120% of the expected gross sample size was ordered.[30] Sample records without telephone number were sent to telephone matching (i.e. looking up missing telephone numbers), and all sample went through telephone number cleaning (i.e. length, format etc. of telephone numbers was checked and corrected, where needed and where possible). Some sample records without telephone number could not be matched, and some telephone numbers could not be cleaned; as such, in most countries, the final sample prepared was somewhat lower than the original sample ordered.

The (final prepared) gross sample was split systematically into three equal sised batches and the first of these was the initial batch of sample that was loaded (equating to 33% of 120% of the anticipated gross sample size, or 40% of the total anticipated gross sample). The remaining two-thirds of the sample was then split systematically into 10 equal sised batches, which were labelled batches 2 to 11, to be loaded in sequence, as required. There were two reasons to work with sample batches: (1) to control the amount of 'open' sample in field;[31] and (2) to adjust the sample structure as fieldwork progresses. The latter meant that, during main stage fieldwork, sample performance was reviewed, and later batches of sample were adjusted, where needed, to meet the targets. At stratum level, if predictions showed that a stratum would go over target, the cases from this stratum were removed in the following sample batches that were loaded. An element of judgment was applied, e.g. if there was limited fieldwork progress to inform the prediction, the decision was held off until later in the fieldwork. Actions were not irreversible, and cases could be added again at a later stage if the predictions changed.

[30] A handful of countries ordered smaller samples to manage costs, on the proviso that the provider could provide additional sample (de-duplicated against earlier orders) quickly, when needed.

[31] 'Open' sample are all sample records that a non-final outcome code (no answer, busy, appointment etc.) and that have been contacted less than six times.

Table 20 in the annex of the Sampling and weighting report provides the MM sampling targets, achieved MM sample sizes and the deviations between the two.[32] Overall, 15 of the 28 countries were within +/- 5 percentage points of the sampling targets on all nine sampling strata, while remaining within the 10% not closed sample level. For the other countries it was usually no more than two cells that were outside of this range, and at an overall level across all countries only 20 cells missed the +/- 5 percentage points out of a total of 252 cells. In terms of sample closed, across all countries, a total of 5% of the gross sample was not closed – i.e. this sample was contacted at least once, but discarded upon realising the net sample (see Section 14.1.1 for results at country level). This compares favourably to the 14% of the previous survey, particularly given the challenges with monitoring a survey with a time lag from CATI screener to CAWI MM interview completion.

7. Main stage telephone (CATI) screener process

7.1 Respondent for the screener questionnaires

In ECS 2019, with a push-to-web design, establishments are first contacted via telephone to complete a screener interview. Based on the findings from the pilot (see Section 5.3), it was decided to complete the CATI screener questionnaire with the most senior person in charge of personnel in the establishment. The most senior person in charge of personnel could be the HR manager, but it could also be the general manager, site manager, office manager, finance/account manager, training manager etc.

In principle, the most senior person in charge of personnel in the establishments had to be selected for the screener (and MM) interview. For large establishments (with 250 or more employees), this requirement was altered to 'a senior person in charge of personnel'.

7.2 Content of the telephone screener questionnaire

Two versions of the screener questionnaire were developed for the survey: one for countries using establishment-level frames and one for countries with a company-level frame. In countries using a company-level frame, it was necessary to have an additional sampling stage as part of the screener interview, given the survey population is establishments, rather than companies (see Section 6.2.5 for more details).

The screener questionnaire contained the following sections (listed in the order as they appeared in the CATI script):

- information about the establishment (number of employees, main sector of activity etc.);
- collecting contact details of the management respondent;
- questions to assess which form(s) of employee representation is present, and to identify the appropriate employee representative respondent;
- collecting contact details of an employee representative (where present);
- screening and sampling of establishments *(only in company-level frame countries)*;
- collecting contact details of additional establishments selected in the sample step *(only in company-level frame countries)*; and
- review of contact details collected.

7.3 Collecting information about employee representatives

The pilot data showed that there was a large variation across countries in awareness and willingness to provide information about the presence of employee representation, and willingness to provide

[32] Eurofound and Cedefop (2020), *European Company Survey 2019: Sampling and weighting report,* European Company Survey 2019 series, Eurofound working paper, Dublin (https://www.eurofound.europa.eu/publications/report/2020/european-company-survey-2019-workplace-practices-unlocking-employee-potential#wp-101981).

contact details of employee representatives. Although a relatively low number of completed ER interviews seemed unavoidable in some countries,[33] all feasible efforts were taken to increase the number of completed ER interviews for the mainstage.

First of all, the ER participation rate was expected to benefit from the final contact approach agreed for the mainstage MM survey, as described above. The pilot data showed that, although management respondents were somewhat more likely to refuse to give contact details of the employee representative, they were more likely than gatekeepers to indicate that an employee representative was present in the establishment. This resulted in a higher number of invitations being sent out to the employee representatives when the respondent for the screener interview was the designated management respondent.

During mainstage fieldwork, a number of other measures were also implemented to increase the likelihood to collect contact details of employee representatives:

1. The order of the screener was revised to improve its flow and increase response to the ER identification questions. During the CATI screener, a first attempt was made to try and collect the ER contact details from the MM respondent. In multi-establishment companies, the ER identification questions were completed before the sampling step in which additional establishments were selected (in the pilot the sampling step was completed first in this sequence).
2. A second attempt was made during the online MM interview to collect contact details of the ERs; if this was successful and contact details were collected during the online MM interview, the ER respondent received an email invitation immediately after the online MM interview had been completed.
3. After the email invitation was sent to ER respondents, a CATI reminder was attempted. If no email was provided by the MM respondent during the screener interviewer nor during the MM online interview, the interviewers attempted to collect the ER's contact details by telephone.
4. If respondents had indicated a willingness to complete the online survey during the first CATI contact but had not yet done so, a second CATI reminder for ER respondents was conducted. See Section 8.1.2 for more details about the CATI reminders.

During mainstage fieldwork, as part of the CATI recruitment stage, interviewers also continued to collect details about employee representation, even if the MM respondent refused to participate in the online interview. The idea behind this was that some MM respondents might refuse to take part in the survey, for example due to time constraints, but might still be willing to provide contact details of the ER respondent. Moreover, in the mainstage, in case no email or telephone number was provided by the manager (at any stage), the interviewers attempted to contact the ER through the switchboard. See Section 11.5, for more details about the effectiveness of these measures implemented to increase ER participation.

7.4 Sampling for employee representatives

At certain establishments, multiple employee representation bodies may exist, but only one employee representative was invited to complete the ER online survey. In the case of multiple employee representation bodies of the same type, the largest – i.e. the one representing the most employees – was selected. For the case of multiple employee representation bodies of a different type, the EIRO[34] expert network of Eurofound proposed a selection (sampling) scheme, using a generic typology developed by the Eurofound research team. The scheme was developed with an aim to select the ER body that was the most likely to influence decision-making at the local

[33] In some countries, a majority of MM respondents refused to provide contact details of the ER, meaning that, even with substantial additional effort, the number of ER contacted will remain low.

[34] https://www.eurofound.europa.eu/observatories/eurwork

establishment. Please refer to Table 68 in the annex for details about this preference ordering across countries.

7.5 Translation

The translation of the CATI screener was executed by the local fieldwork agencies, who carried out the actual translation and proofreading of the materials. A single stage translation approach was used, which included internal proofreading. The translation of all fieldwork materials took place in the course of July and September 2018. Post-pilot changes to the translations were implemented in January 2019.

8. Email invitation and reminders, FAQ and privacy policy

8.1 Email invitation and landing page

Immediately after having completed the screener interview, interviewers reviewed the contact details of the MM respondent and, where available, the ER respondent. Once this review had been completed, the email invitation was sent out to respondents from the Dimensions platform.[35]

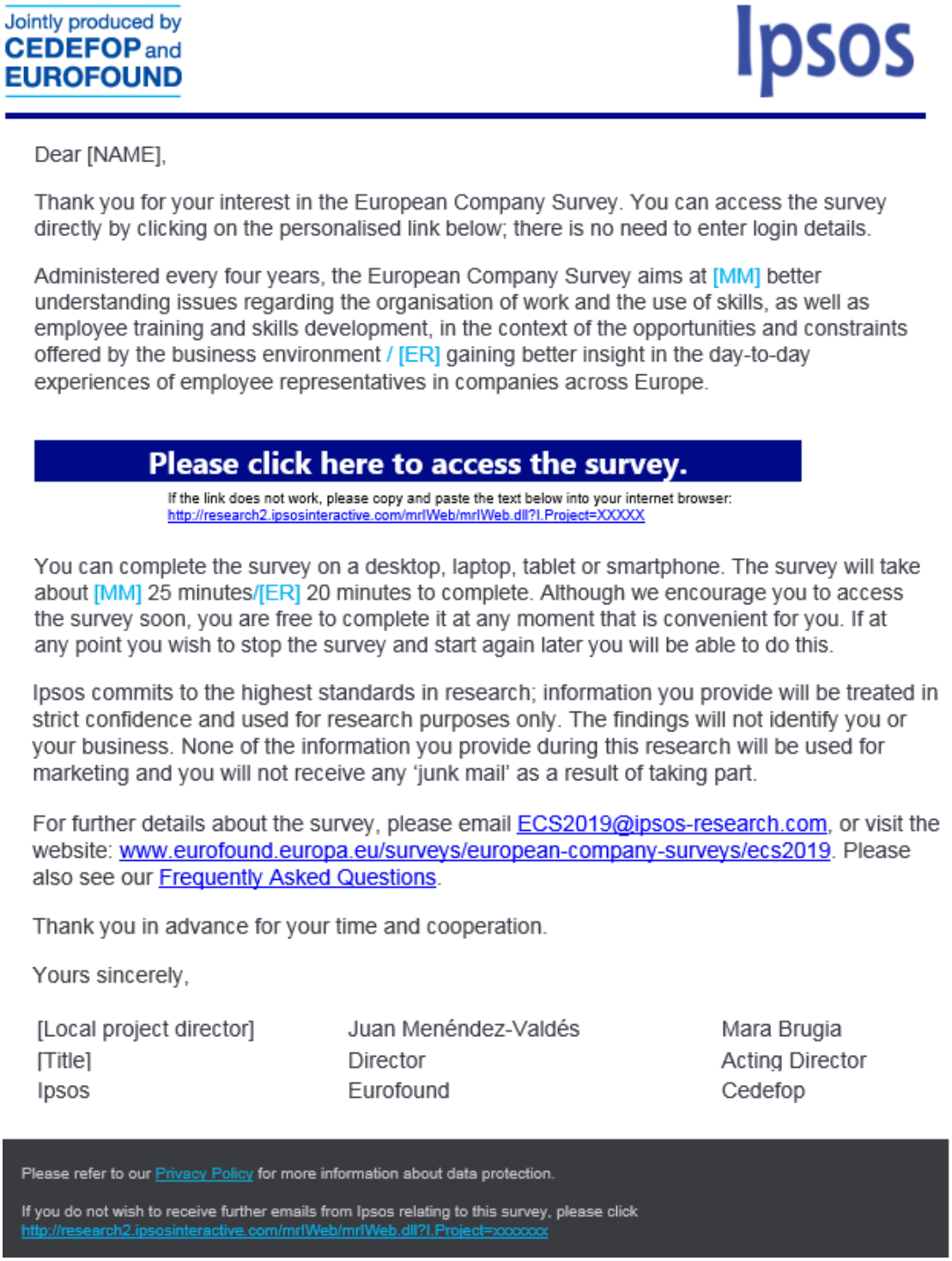
The email invitations (and email reminders) were sent with ECS2019@ipsos-research.com in the 'From' field. This choice was made to establish trust by ensuring that the name of the survey and fieldwork organisation is stated explicitly. The subject line was clear and concise, and kept below 60 characters (i.e. Your participation in the 4th European Company Survey).

All email invitations were structured in the same way and had a similar content. In terms of variants, the following elements varied between the emails:

1. **Personalisation: yes/no**
   A positive effect of personalisation of e-mail invitations on participation has been shown in several studies. Interviewers had to tick a box to indicate whether the name they had recorded during the screener interview could be used to personalise the email invitation; if they had not been able to record the name correctly, a generic email was sent.
2. The first sentence varied depending on whether the **interviewer had spoken to the respondent during the screener interview or not**
   Spoken to the respondent (MM respondents and ER respondents who provided their email address during a follow-up telephone call): Thank you for your interest in the European Company Survey.
   Not spoken to the respondent (ER respondents for whom email address was collected via the MM respondent): We are kindly asking your cooperation with the 4th European Company Survey.
3. The paragraph about the purpose of the survey (and the indication about duration to complete the survey) varied for **MM and ER respondents**
   MM respondents (25 minutes): Administered every four years, the European Company Survey aims at better understanding issues regarding the organisation of work and the use of skills, as well as employee training and skills development, in the context of the opportunities and constraints offered by the business environment.
   ER respondents (20 minutes): Administered every four years, the European Company Survey aims at gaining better insight in the day-to-day experiences of employee representatives in companies across Europe.

[35] Dimensions platform (UNICOM Intelligence, previously IBM SPSS Data Collection).

Figure 8: Example invitation email



Jointly produced by CEDEFOP and EUROFOUND

Ipsos

Dear [NAME],

Thank you for your interest in the European Company Survey. You can access the survey directly by clicking on the personalised link below; there is no need to enter login details.

Administered every four years, the European Company Survey aims at [MM] better understanding issues regarding the organisation of work and the use of skills, as well as employee training and skills development, in the context of the opportunities and constraints offered by the business environment / [ER] gaining better insight in the day-to-day experiences of employee representatives in companies across Europe.

Please click here to access the survey.

If the link does not work, please copy and paste the text below into your internet browser:
http://research2.ipsosinteractive.com/mrlWeb/mrlWeb.dll?I.Project=XXXXX

You can complete the survey on a desktop, laptop, tablet or smartphone. The survey will take about [MM] 25 minutes/[ER] 20 minutes to complete. Although we encourage you to access the survey soon, you are free to complete it at any moment that is convenient for you. If at any point you wish to stop the survey and start again later you will be able to do this.

Ipsos commits to the highest standards in research; information you provide will be treated in strict confidence and used for research purposes only. The findings will not identify you or your business. None of the information you provide during this research will be used for marketing and you will not receive any 'junk mail' as a result of taking part.

For further details about the survey, please email ECS2019@ipsos-research.com, or visit the website: www.eurofound.europa.eu/surveys/european-company-surveys/ecs2019. Please also see our Frequently Asked Questions.

Thank you in advance for your time and cooperation.

Yours sincerely,

[Local project director]	Juan Menéndez-Valdés	Mara Brugia
[Title]	Director	Acting Director
Ipsos	Eurofound	Cedefop

Please refer to our Privacy Policy for more information about data protection.

If you do not wish to receive further emails from Ipsos relating to this survey, please click
http://research2.ipsosinteractive.com/mrlWeb/mrlWeb.dll?I.Project=xxxxxxx

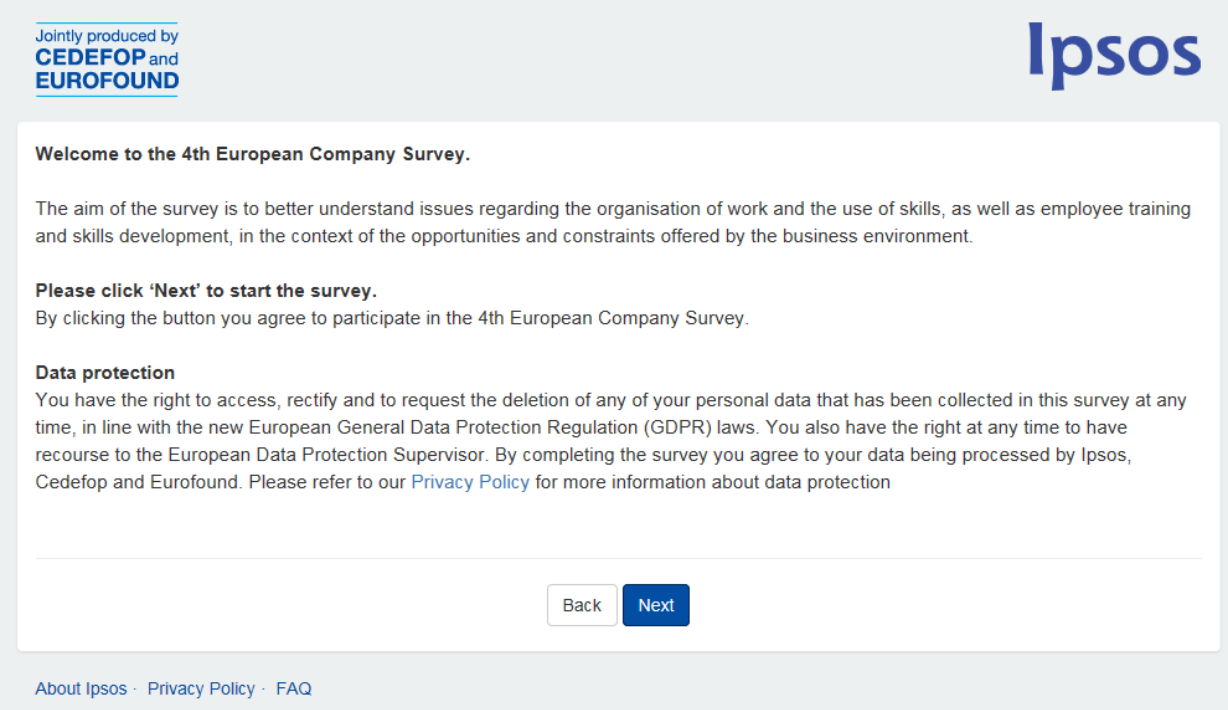
In the pilot, the email invitation for MM respondents included a paragraph about a customised report being offered to all MM respondents who complete the online survey. For the mainstage, the paragraph was redrafted to provide more information about the content of this customised report.[36] It was also decided to refer back to the customised report in the first email reminder.

[36] Paragraph about offering a customised summary report: We offer respondents a customised summary report. This brief report will benchmark your workplace against similar workplaces on some key indicators such as business performance,

In three countries, the email invitation to MM respondents explained that an incentive was foreseen for those completing the online survey. These countries were Czechia (a €5 donation to a charity), Finland (a €5.40 shopping voucher) and Slovakia (a €5 donation to a charity).

After clicking on the web link in the email invitation ('Please click here to access the survey'), respondents were taken to the landing page of ECS 2019. [37] The landing page was necessary to obtain consent for data collection. Respondents started the survey after clicking the 'next' button, and this was explained on the landing page; this type of active affirmative action is necessary to gain consent. The landing page, combined with the email invitation (and privacy policy), contained the necessary information so that the consent given could be considered 'informed' (e.g. the purpose of the study is explained, information on data protection measures is included in the email and respondents are informed about GDPR rules on the landing page). These materials were translated into the local language(s) of the country.

Figure 9: Landing page of the online survey

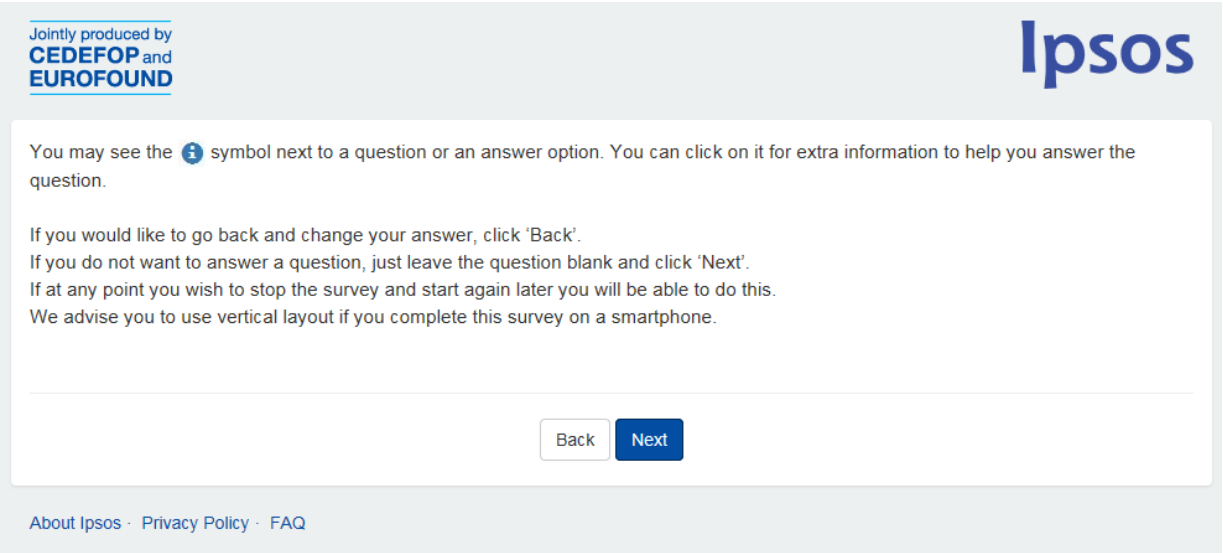


On the page following the landing page, respondents received instructions about using the (i) button that is available for some questions, and are explained that they can use the 'back' button to change their answer, or the 'next' button when they prefer not to answer a question. They are also reminded that they can take a break part way through completing the survey, and that they can continue where they left off. Smartphone users were advised to use vertical layout.

product demand conditions, product market strategies, staff motivation and work climate. The report would be sent to you in the second half of 2019. (See Figure 11 for more details.)

[37] The language of the landing page is the same as the language used for the screener questionnaire; however, in countries where the online survey is available in more than one language, respondents are first shown a language selection screen, before being taken to the landing page.

Figure 10: Page with instructions, following the landing page



8.1.1 Email reminders

In order to increase response to the online surveys, up to four email reminders to complete the online questionnaire were sent to MM and ER respondents who did not (yet) complete the online questionnaire.

Number of email reminders

The pilot showed that scheduling the CATI reminders turned out to be a difficult exercise for many fieldwork teams, and as consequence a number of CATI reminders were not scheduled according to the experimental conditions. For mainstage fieldwork, it was decided to continue sending email reminders, even during the period that the CATI reminder was scheduled (and increase the number of email reminders from three to four reminders).

Timing for sending out email reminders

In line with conclusions of Dillman and Millar's experiment,[38] email reminders were spaced apart to avoid respondents feeling bombarded by survey invitations. Results from various studies on best days of the week for sending email invitations and reminders for business surveys show mixed results. Some studies advise to vary the day of the week across the different email contacts. For the main stage, there were four working days between email reminders.

Dillman further recommends that emails should be sent when respondents are most likely to check email and be free from other demands. Nonetheless, there is little evidence to inform the best time to send out email reminders, as studies looking at the best time in the day to send email reminders show either no effect, or contradicting effects. The following times were set to send the email reminders:

- 10am CET on Tuesday, Wednesday and Friday
- 2pm CET on Monday and Thursday

The reminders are set in one time-zone and cannot be adjusted according to local time zones (this to allow for automation in sending out the reminders). This means, for example, that respondents in the United Kingdom received the email reminder at 9am; respondents in Belgium at 10am; in Bulgaria, at 11am.

[38] Morgan M. Millar, Don A. Dillman; Improving Response to Web and Mixed-Mode Surveys, Public Opinion Quarterly, Volume 75, Issue 2, 1 January 2011, Pages 249–269.

Content of the email reminders

Careful thought was also given to the look and feel of the email reminders, because it is important to ensure that all respondent-facing survey materials (online survey, email invitation and email reminders) are visually consistent in terms of the core brand elements (i.e. logo, colour palette, graphical elements). Some studies[39] suggest that maintaining consistency and "using the same branding and key words as in the survey invitation and other correspondence help jog the respondents' memory and minimise confusion."

All email reminders had a similar structure and content, but the wording of the paragraph above the survey link was varied to increase the likelihood of motivating reluctant respondents. Some studies found that response rates significantly increase when the wording of reminders is changed.[40]

The first email reminder to MM respondents repeated that a customised report would be offered, while the first email reminder for ER respondents stressed the importance of the ER survey in shaping national and European decision-making. The second email reminder explained what the benefits were from participating in ECS 2019, and the third email reminder included a reference to the number of completed interviews in the 3rd ECS conducted in 2013.

To increase the tone of urgency, the last email reminder used a different subject line (Last chance to participate in the 4th European Company Survey), included wording that this was respondent's last chance to make their opinion count and mentioned a date by which the survey should be completed (this date was five working days after the date that the email was received).

Finally, the wording of the reminder email also reflected whether the respondent had yet to click on the survey link or whether they had already partially completed the survey. Respondents who had already started to complete the survey were explained that, by following the link in the email, they would return to the part in the survey where they had stopped.

8.1.2 CATI reminder

In addition to sending out up to four email reminders, one of the reminders to both MM and ER respondents was conducted by telephone. CATI centres were instructed to conduct CATI reminders in a time span of five working days (with at least three contact attempts, on different days and times of the days).

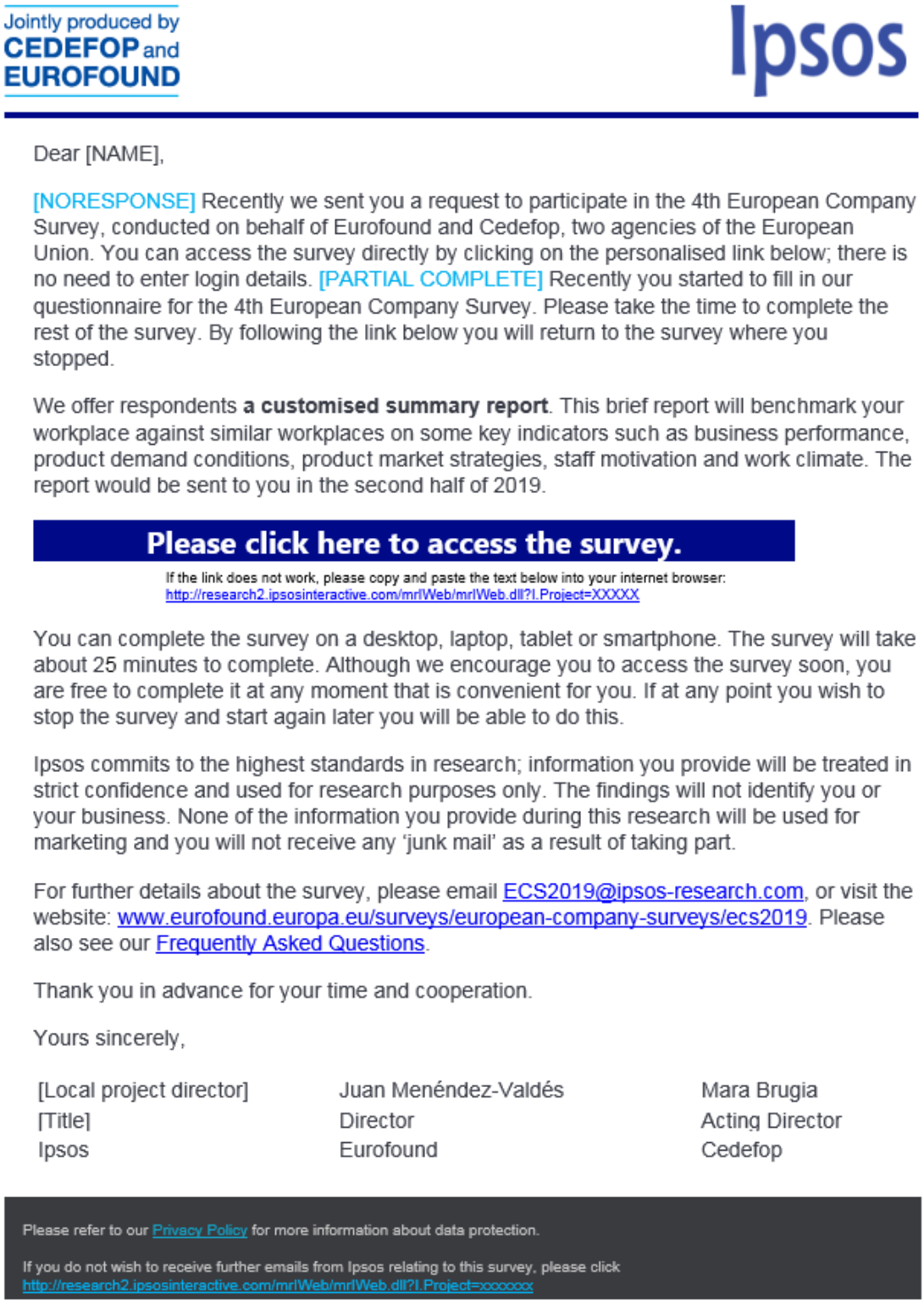
The CATI reminder for MM respondents was, in principle, always scheduled after the 2nd email reminder. The CATI reminder for ER respondents was scheduled immediately after the email invitation. ER respondents for whom interviewers were not able to get a (work) email address during the screener interview, received a CATI 'invitation', and when interviewers were able to collect an email address during that telephone call, an email invitation was sent.

In principle, for mainstage only one CATI reminder was foreseen; however, in an attempt to increase response among MM and/or ER respondents, in some countries, and for a selection of respondents, a second CATI reminder was conducted. For more details about these second CATI reminders, see Section 12.2.

[39] For example, Australian Bureau of Statistics (2010). Survey reminders. http://www.nss.gov.au/nss/home.NSF/pages/Survey+reminders?OpenDocument (accessed 23.05.2018)

[40] For example, Sauermann, H, and Roach, M. (2012). Increasing web survey response rates in innovation research: An experimental study of static and dynamic contact design features. *Research Policy, 42*, 273-286.

Figure 11: Example reminder email (MM respondents)



Jointly produced by CEDEFOP and EUROFOUND

Ipsos

Dear [NAME],

[NORESPONSE] Recently we sent you a request to participate in the 4th European Company Survey, conducted on behalf of Eurofound and Cedefop, two agencies of the European Union. You can access the survey directly by clicking on the personalised link below; there is no need to enter login details. [PARTIAL COMPLETE] Recently you started to fill in our questionnaire for the 4th European Company Survey. Please take the time to complete the rest of the survey. By following the link below you will return to the survey where you stopped.

We offer respondents **a customised summary report**. This brief report will benchmark your workplace against similar workplaces on some key indicators such as business performance, product demand conditions, product market strategies, staff motivation and work climate. The report would be sent to you in the second half of 2019.

Please click here to access the survey.

If the link does not work, please copy and paste the text below into your internet browser:
http://research2.ipsosinteractive.com/mrIWeb/mrIWeb.dll?I.Project=XXXXX

You can complete the survey on a desktop, laptop, tablet or smartphone. The survey will take about 25 minutes to complete. Although we encourage you to access the survey soon, you are free to complete it at any moment that is convenient for you. If at any point you wish to stop the survey and start again later you will be able to do this.

Ipsos commits to the highest standards in research; information you provide will be treated in strict confidence and used for research purposes only. The findings will not identify you or your business. None of the information you provide during this research will be used for marketing and you will not receive any 'junk mail' as a result of taking part.

For further details about the survey, please email ECS2019@ipsos-research.com, or visit the website: www.eurofound.europa.eu/surveys/european-company-surveys/ecs2019. Please also see our Frequently Asked Questions.

Thank you in advance for your time and cooperation.

Yours sincerely,

[Local project director]	Juan Menéndez-Valdés	Mara Brugia
[Title]	Director	Acting Director
Ipsos	Eurofound	Cedefop

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If you do not wish to receive further emails from Ipsos relating to this survey, please click
http://research2.ipsosinteractive.com/mrIWeb/mrIWeb.dll?I.Project=xxxxxx

8.2 FAQs and reassurance/information email

A reassurance email was prepared so that interviewers could email it to gatekeepers and respondents during the screener interviews, if required. The email could be sent directly from the CATI platform. The reassurance email stressed the confidential nature of the study, gave a brief outline of the topics covered and, ultimately, aimed to achieve gatekeepers and respondents' 'buy in' to the survey (e.g. through stressing the importance of the study and how the findings could help businesses like theirs in the future).

A list of Frequently Asked Questions (FAQ), translated into each of the local languages, was also made available to MM and ER respondents, via a link in the invitation and reminder emails, and via a link in the online surveys.

8.3 Privacy policy

The privacy policy for ECS 2019 was translated into all local languages and made available via a link in the email invitation and email reminders, and via a link in the online questionnaires. Interviewers conducting screener interviews and reminders telephone calls could also direct respondents to a web page containing all local language versions of the privacy policy. The privacy policy was reviewed by the Data Protection Officers of Ipsos, Eurofound and Cedefop.

The privacy policy was structured around eight essential questions:

1. What is this survey about?
2. Who is carrying out the survey?
3. How and for which purpose will Ipsos, Eurofound and Cedefop use the information you provide?
4. How long will Ipsos keep the information you provide?
5. Who can you contact concerning the use of your data and how can you exercise your rights as a data subject?
6. How does Ipsos ensure your personal information is held securely?
7. Does the survey collect information via 'cookies'?
8. How to contact Ipsos?

8.4 Translation process

The following fieldwork materials were also translated into all target languages:

- Interviewer manual;
- CATI screener questionnaire;
- Invitation, reminder and reassurance emails;
- CATI reminder questionnaire;
- FAQs; and
- Privacy policy.

The translation of fieldwork materials was executed by the local fieldwork agencies, who carried out the translation and proofreading of the materials. A single stage translation approach was used, which included internal proofreading. The translation of all fieldwork materials took place in the course of July and September 2018, while post-pilot changes were implemented in December 2018.

Part B. Implementation of ECS 2019

9. Interviewer training and monitoring

This chapter presents an overview of the CATI field force that conducted the CATI screener fieldwork, the briefing and training of the CATI field force and interviewer monitoring.

For each local network partner, a project leader was responsible for the briefing, training and supervision of supervisors and interviewers, and the monitoring of fieldwork in her/his country. For each of these responsibilities, the local project leader received clear instructions and guidance from the coordination team at Ipsos. All local project leaders were invited to attend a one-day seminar during the preparation phase of the survey, and another one-day seminar was organised just before the main stage fieldwork launch.

9.1 CATI field force

In total, 629 interviewers conducted fieldwork for the CATI screener (and CATI reminders). The number of interviewers per country varied between 7 in Luxembourg and 84 in the United Kingdom. The field force consisted of native speakers of the language in which they were carrying out interviews.

In each country, a small number of supervisors (at least one per country) was responsible for monitoring the activities of the interviewers. All supervisors had extensive experience with CATI and with the supervision of interviewers.

Table 8 provides details about the characteristics of those interviewers who provided consent to append their anonymous interviewer ID, together with details about their gender, age and experience, to the already anonymised survey data. The majority (67%) of these interviewers were women and a slim majority (57%) was between 30 and 59 years-of-age. Interviewers were also asked to provide information about the number of years they had been working as a CATI interviewer: 53% replied that they had more than three years' experience and 42% had between one and three years' experience. A smaller share of interviewers had less than one year of experience as a telephone interviewer; and this proportion was larger in Croatia (25%), Belgium (26%) and Bulgaria (42%). It was a requirement for interviewers to have at least three months CATI interviewing experience.

Table 8: Field force characteristics, by country

	Total	Consented [1]	Gender		Age			Experience		
			Male	Female	<30	30-59	60+	<1 year	1-3 years	4+ years
All countries	629	443	32%	67%	30%	57%	14%	6%	42%	53%
Austria	22	22	45%	55%	9%	73%	18%	0%	9%	91%
Belgium	24	19	47%	53%	47%	53%	0%	26%	53%	21%
Bulgaria	16	12	17%	83%	64%	36%	0%	42%	50%	8%
Croatia	40	36	28%	72%	92%	6%	3%	25%	58%	17%
Cyprus	8	8	0%	100%	75%	25%	0%	0%	100%	0%
Czechia	30	24	29%	71%	4%	50%	46%	0%	67%	33%
Denmark	17	14	43%	57%	100%	0%	0%	0%	100%	0%
Estonia	9	9	44%	56%	0%	67%	33%	0%	0%	100%
Finland	8	7	43%	57%	0%	86%	14%	0%	14%	86%

	Total	Consented [1]	Gender		Age			Experience		
			Male	Female	<30	30-59	60+	<1 year	1-3 years	4+ years
France	22	21	14%	86%	5%	76%	19%	5%	14%	81%
Germany	43	30	60%	40%	10%	73%	17%	0%	13%	87%
Greece	13	13	31%	69%	0%	100%	0%	0%	38%	62%
Hungary	13	8	13%	88%	88%	13%	0%	0%	63%	38%
Ireland	19	9	67%	33%	78%	22%	0%	22%	78%	0%
Italy	18	18	11%	89%	11%	67%	22%	0%	28%	72%
Latvia	8	8	0%	100%	13%	63%	25%	0%	50%	50%
Lithuania	10	10	10%	90%	0%	60%	40%	0%	50%	50%
Luxembourg	7	3	50%	50%	0%	100%	0%	0%	0%	100%
Malta	12	12	33%	67%	0%	73%	27%	0%	0%	100%
Netherlands	31	15	53%	47%	7%	53%	40%	0%	0%	100%
Poland	32	16	29%	71%	41%	59%	0%	0%	47%	53%
Portugal	23	23	30%	70%	30%	61%	9%	9%	39%	52%
Romania	34	34	6%	94%	50%	50%	0%	0%	68%	32%
Slovakia	28	10	20%	80%	40%	30%	30%	0%	40%	60%
Slovenia	10	9	33%	67%	11%	67%	22%	0%	33%	67%
Spain	24	18	0%	100%	0%	100%	0%	0%	17%	83%
Sweden	24	13	54%	46%	0%	69%	31%	0%	31%	69%
United Kingdom	84	22	63%	38%	4%	87%	9%	4%	63%	33%

Note: (1) Interviewers were asked for consent to append their anonymous interviewer ID, together with details about their gender, age and experience, to the already anonymised survey data.

9.2 Interviewer briefing sessions

In each country, one or more formal training sessions were organised for all interviewers by the local project leader. The training included all elements of the fieldwork process. During the training session, interviewers completed role-playing exercises to introduce ECS 2019 and gain cooperation from respondents, and conducted one or more test interviews (using a test version of the CATI script).

The coordination team provided the materials (training slides) for these training sessions, ensuring that consistent instructions were given across the countries. Two versions of the training slides were developed: one version for countries using an establishment-based frame and another version for countries using a company-based frame.

The training slides were translated into the local language by the local agencies before they were used for the briefings. Local project leaders were also instructed to provide a printed copy of the training slides to interviewers, so that the slides were available for reference throughout the fieldwork period. In the main stage, in addition to a printed copy of the training slides, interviewers were provided with a 2-page information (or tip) sheet (see Figure 14).

Feedback from the local project leaders, both after the pilot and during main stage fieldwork, suggests that the briefing materials were well received by the interviewers and that the format of

the training was suitable. The briefing slides were considered useful, well-structured, understandable, and relevant in terms of content.

After the pilot, a few country leaders reported that they would have liked the coordination team to develop more role plays for interviewers to practice introducing ECS 2019 and gain cooperation, but also more role plays to respond to concerns to share contact details, and explaining the importance of the sample step to select extra establishments. During the main stage, more role play examples were prepared and provided to the local team leaders.

Figure 12: Content of the interviewer training for ECS 2019 in countries using company-based sample frames

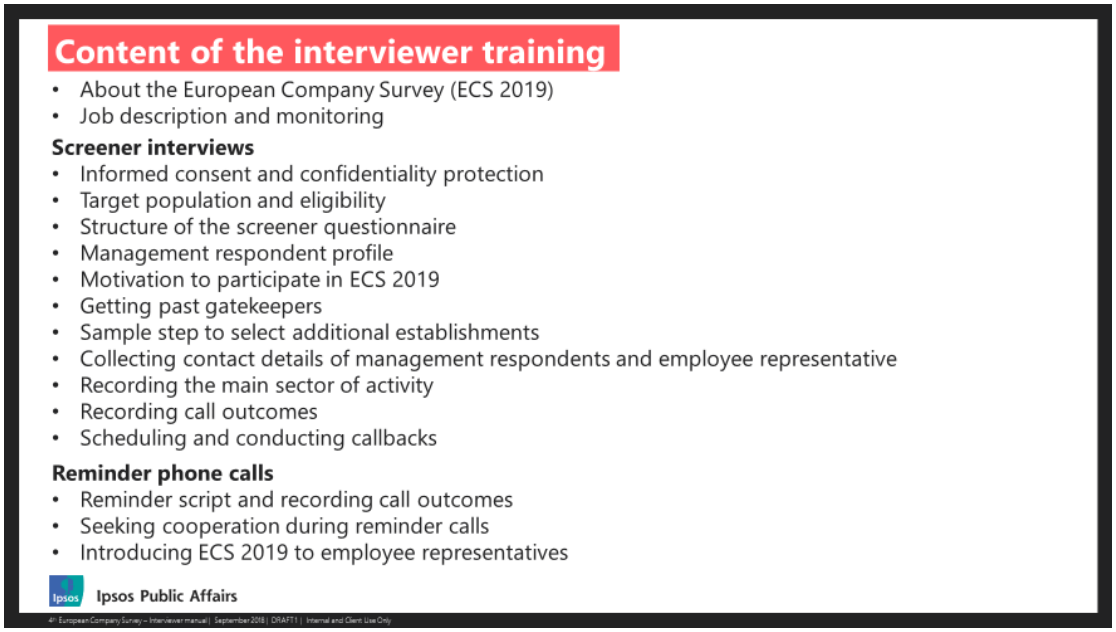

Figure 13: Content of the interviewer training for ECS 2019 in countries using establishment-based sample frames

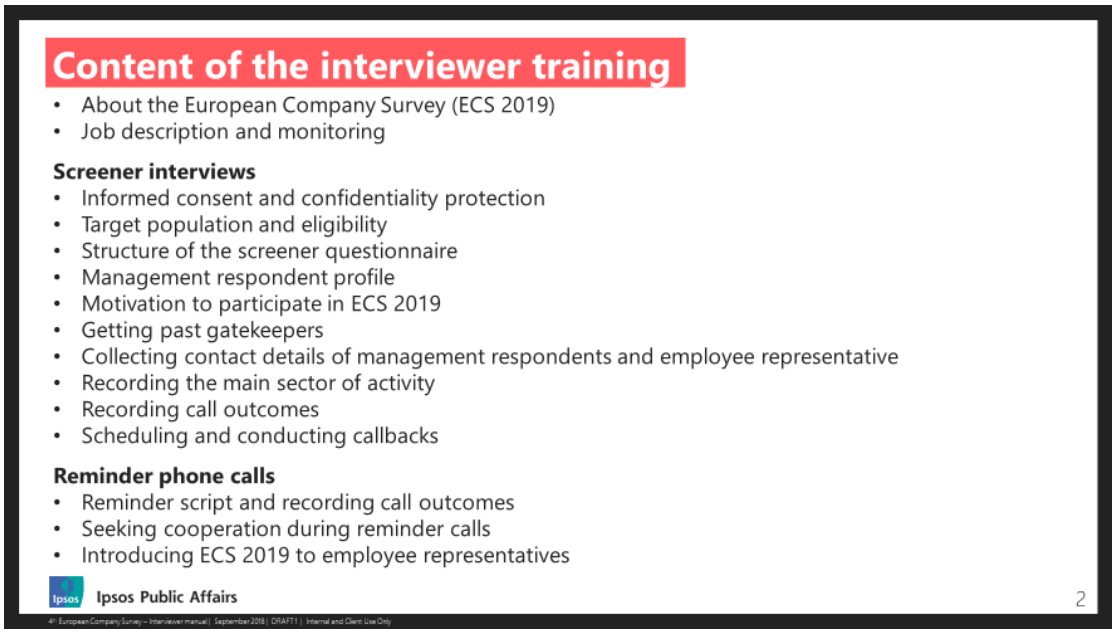

Figure 14: Interviewer tip sheet for ECS 2019

Why is this survey important?

Eurofound and **Cedefop** have joined forces to carry out the **4th European Company Survey (ECS) in 2019**. The ECS 2019 will collect data in **over 20,000 establishments** on workplace practices with regard to **work organisation, human resource management, skills use, skills strategies, digitalisation, direct employee participation and social dialogue**.

The ECS 2019 is being carried out by Ipsos, on behalf of the **European Foundation for the Improvement of Living and Working Conditions (Eurofound) and European Centre for the Development of Vocational Training (Cedefop)**. Eurofound and Cedefop are agencies of the European Union doing research and providing advice to policy makers.

Why is this survey important?

Findings from previous editions of Eurofound's European Company Survey as well as from the Cedefop work on skills strategies are regularly used by the European institutions and national governments, by trade unions and employers' organisations, and by international organisations such as the OECD and the ILO.

The ECS 2019 will continue to inform the debate on workplace innovation – ways to make better use of the invaluable but often tacit knowledge that employees have on work processes and work organisation – that is held at a European level as well as in the Member States. More than previous editions, the ECS 2019 covers issues to do with skills use and skills development, ensuring that the survey will provide timely and relevant information in that domain as well. Furthermore, the ECS 2019 will uniquely combine information on work organisation and digitalisation, which can help inform future debate on the digital agenda.

What are the benefits of taking part in ECS 2019?

The survey provides you with the opportunity to give input into research which will help national governments and European institutions, trade unions and employers' organisations better understand issues regarding the organisation of work and the use of skills, as well as employee training and skills development.

Customised report for management respondents

At the end of the online survey, management respondents will be asked if they would like to receive a customised summary report. The report will compare your workplace with workplaces in the same size category.

The reports will focus on 8 to 10 indicators on the performance of businesses (profits, production volume), product demand conditions (how predictable is the demand for the product or services provided by the establishment), product market strategies (do workplaces emphasize low prices, high quality, customisation to client needs or innovation), staff motivation (does the establishment have issues with finding or keeping staff, with staff absenteeism or with staff motivation) and work climate.

What precautions for confidentiality, anonymity and data protection have been taken?

- Ipsos commits to the highest standards in research.
- Information you provide will be treated in strict confidence and used by Ipsos, Eurofound and Cedefop for research purposes only.
- None of the information provided during this research will be used for marketing and you will not receive any 'junk mail' as a result of taking part.
- At the end of the project, in the second half of 2019, Ipsos will securely destroy all the personal information, leaving only anonymous research results.
- Privacy Policy: www.ipsos.uk/ECS4_2019

Will establishments be identifiable in the results?

- Your individual responses will be used only in the production of your customised report, if you asked for one.
- Any other results of the research will be anonymous, statistical information only, and you will NOT be identifiable in any published results.

If the respondents requires **proof that the survey is legitimate**, there is a **reassurance email** available that can be sent from the platform, or you can direct them to the website of Eurofound which has an area about ECS 2019: www.eurofound.europa.eu/surveys/european-company-surveys/ecs2019

Getting past gatekeepers

Reassurances to use if necessary:

- Explain that you would like to **most senior person in charge of personnel;** this could be the HR manager, but it could also be the general manager, site manager, office manager, finance/account manager, training manager etc.
- Explain that we would like to invite the most senior person in charge of personnel (and an employee representative, if present) to take part in an **online survey**, but before inviting them we need to find out if the establishment qualifies to participate.
- Emphasize that you only want to ask **a few simple questions** about the size of the establishment, main activity and types of employee representation. Answering these questions will take less than 5 minutes.
- This establishment has been selected at random to represent establishments within their sector of activity. **To obtain representative results, it is important that as many of the selected establishments as possible take part.**
- If the gatekeeper requires **proof that the survey is legitimate**, there is a **reassurance email** available that can be sent from the platform, or you can direct them to the website of Eurofound which has an area about ECS 2019: www.eurofound.europa.eu/surveys/european-company-surveys/ecs2019

Introducing ECS 2019 to employee representatives

The European Company Survey is the **only source of comparative information on social dialogue practices in European companies**, and as such informs national and European decision-making on the requirements for companies to set up structures for employee representation.

On the last European Company Survey conducted in 2013, **over 9,000 employee representatives across Europe shared their day-to-day experiences** via the survey and helped shaping national and European decision-making on the requirements for companies to set up structures for employee representation.

EMPLOYEE REPRESENTATIVES

How did you get my name and email address?

Your company has been chosen at random from [sample frame/register] to make sure we get a truly representative picture of all establishments in Europe. Your company was then contacted by one of our interviewers, who conducted a short screener interview with the most senior person in charge of personnel in your establishment. We received your phone number and email address during this short interview.

Both you and the most senior person in charge of personnel have received an invitation to complete our online survey. In the online surveys, **management respondents** are asked questions on topics such as the **organisation of work, the use of skills and employee training**, while **employee representative respondents** receive questions about **direct employee participation and social dialogue**.

Re-assure employee representatives that the survey will be carried out under all the confidentiality and data protection rules. **All the data gathered from the survey will be anonymised and none of their answers will be shared with the management respondent and vice versa.**

9.3 Languages used and translation of training material

In six countries, more than one language was used for the telephone screener interviews, invitation and reminder emails and online surveys.

In Belgium, the training slides and tip sheet were translated into Dutch and French, while in Luxembourg, the training slides and tip sheet were available in French and German. In both countries, training sessions were organised in both languages.

In the remaining countries (Estonia, Latvia, Malta and Spain), the interviewer training slides and tip sheet were only translated in one of the languages used (respectively, Estonian, Latvian, English and Spanish).

In Estonia, Latvia and Malta, all interviewers spoke both languages in which the screener and online survey could be completed: Estonian and Russian in Estonia, Latvian and Russian in Latvia and English and Maltese in Malta. At the start of the screener interview, the respondent was given a choice of language and the screener continued in their preferred language. The CATI reminders were, in principle, conducted in the language selected for the screener interview. Given that the interviewers were bi-lingual, the training was organised in the main language used for screeners and online interviews (i.e. Estonian, Latvian and English). The local leader managers confirmed that the absence of a manual in the second language did not cause any problems during the training, and interviewers had no issues to bring the main messages and points of the survey in the second language.

In Spain, the majority of the interviewers only spoke Spanish, and a small number of interviewers spoke both Spanish and Catalan. When a respondent wanted to proceed with the screener (or CATI reminder) in Catalan, the respondent was transferred to one of the Catalan interviewers; if no Catalan interviewer was available, a call-back appointment was made. The Catalan interviewers were trained in the same way as the other interviewers, using the interviewer manual in Spanish. Also here, country managers confirmed that the absence of a manual in Catalan did not cause any problems during the training, nor during fieldwork.

Table 9: Languages used for screener interviews, CATI reminder calls and online interviews, by country

	Language	**Screener interviews**		**CATI reminders**		**MM online interviews**		**ER online interviews**	
Belgium	Dutch	2,026	(66%)	1,311	(69%)	704	(69%)	73	(73%)
	French	1,031	(34%)	597	(31%)	312	(31%)	27	(27%)
Estonia	Estonian	941	(88%)	404	(87%)	442	(88%)	14	(82%)
	Russian	128	(12%)	63	(13%)	59	(12%)	3	(18%)
Latvia	Latvian	1,726	(94%)	752	(94%)	490	(95%)	12	(100%)
	Russian	102	(6%)	52	(6%)	28	(5%)	0	(0%)
Luxembourg	French	993	(93%)	641	(93%)	217	(91%)	34	(87%)
	German	75	(7%)	45	(7%)	22	(9%)	5	(13%)
Malta	English	317	(90%)	212	(100%)	126	(86%)	4	(80%)
	Maltese	34	(10%)	1	(0%)	20	(14%)	1	(20%)
Spain	Spanish	4,252	(100%)	2,806	(100%)	1,465	(99%)	187	(95%)
	Catalan	14	(0%)	0	(0%)	20	(1%)	9	(5%)

9.4 Interviewer monitoring

Interviewers were closely supervised by the local project leaders and experienced supervisors in the CATI fieldwork centres, all of whom had previously worked on business surveys. They monitored interviewers' activities during the data collection process through listen-ins, assessing the quality of the work of the interviewers and the quality of the data from the completed screener questionnaire.

Supervisors focussed on the following quality indicators during the listen-ins:

- Correctly recording of call disposition codes and not deviating from the CATI script;
- Making contact and avoiding refusals to complete the screener;
- Avoiding break-offs during the screener and scheduling call-backs, when needed;
- Convincing respondents to share contact details of MM and ER respondents (email address and telephone number);
- Correctly recording names and email addresses; and
- Seeking cooperation of MM and ER respondents to complete the online surveys both during screener and reminder telephone calls.

At least 10% of screener and reminder telephone calls were checked for quality assurance, via remote listen-in, but occasionally also via re-contact or back-checking. Supervisors randomly checked interviewers and listened in on interviews. All interviewers were monitored, but additional listening-in was triggered by (poor) interviewer performance. The local project leaders prepared a quality control report, on a weekly basis, reporting on the number of checks performed, and the actions taken in case any issues were detected (e.g. interviewer removed from project, additional training, additional quality checks).

10. Fieldwork dates and progress

10.1 Fieldwork dates

10.1.1 CATI screener fieldwork dates

Fieldwork for the CATI screener started on 23 January 2019 in a first group of five countries (Denmark, Germany, Italy, Luxembourg and the Netherlands). By 28 January 2019 (the deadline to start fieldwork set forward in the timetable agreed with Eurofound and Cedefop), fieldwork had started in all but one of the countries. In Poland, due to illness of the local project leader, fieldwork started one day later, on 29 January 2019.

In the timetable agreed with Eurofound and Cedefop, a fieldwork period of roughly 18 weeks, from 28 January until 31 May 2019, was foreseen. By 31 May 2019, nine countries had closed fieldwork for the CATI screener. Among these countries, seven had reached the target number of CATI screener (and target number of MM online interviews), but this was not the case for Malta and Cyprus; in these two countries, fieldwork was closed as no further sample was available – see Section 6.3 for more details.

At the end of May, a fieldwork extension of two weeks, until 14 June 2019, was agreed with Eurofound and Cedefop. Another 11 countries closed the CATI screener fieldwork during this two-week fieldwork extension. Eight countries needed another few days after the fieldwork extension period to complete the fieldwork for the CATI screener (Bulgaria, Czechia, France, Greece, Poland, Romania, Slovakia and Spain). Greece was the last country to close the CATI screener fieldwork (on 20 June 2019).

Table 10: Fieldwork dates for CATI screener interviews, by country

	Start date	End date	Number of weeks in field
All countries	23 January 2019	20 June 2019	21
Austria	28 January 2019	12 June 2019	20
Belgium	25 January 2019	20 May 2019	17
Bulgaria	25 January 2019	19 June 2019	21
Croatia	25 January 2019	7 June 2019	19
Cyprus	25 January 2019	11 April 2019	11
Czechia	28 January 2019	19 June 2019	21
Denmark	23 January 2019	16 May 2019	16
Estonia	28 January 2019	16 May 2019	16
Finland	25 January 2019	17 May 2019	17
France	24 January 2019	18 June 2019	21
Germany	23 January 2019	11 June 2019	20
Greece	28 January 2019	20 June 2019	21
Hungary	28 January 2019	12 June 2019	20
Ireland	28 January 2019	27 May 2019	17
Italy	23 January 2019	14 June 2019	21
Latvia	28 January 2019	14 June 2019	21
Lithuania	28 January 2019	17 May 2019	16
Luxembourg	23 January 2019	4 June 2019	19
Malta	25 January 2019	2 May 2019	14
Netherlands	23 January 2019	31 May 2019	19
Poland	29 January 2019	19 June 2019	21
Portugal	24 January 2019	14 June 2019	21
Romania	25 January 2019	18 June 2019	21
Slovakia	28 January 2019	19 June 2019	21
Slovenia	25 January 2019	5 June 2019	19
Spain	28 January 2019	19 June 2019	21
Sweden	28 January 2019	10 June 2019	20
United Kingdom	24 January 2019	14 June 2019	21

10.1.2 Email reminder fieldwork dates

The first email reminders to MM and ER respondents were sent on 29 January 2019, i.e. four working days after the first invitation emails were sent (see section 8.1.1). In Poland, the last country to start the CATI screener fieldwork, the first email reminder to MM respondents was sent on 4 February 2019. In a few countries, the first ER respondents were only recruited after the first few days of fieldwork; as such, in some countries, the first email invitations to ER respondents were sent out a few days later than the first email reminders to MM respondents.

The very last email reminder to an MM respondent was sent on 12 July 2019 in Czechia. The majority of email reminders, however, was sent out before the main summer months: out of the 38,769 final email reminders sent to MM respondents, 95% was sent before July 2019.

Table 11: Fieldwork dates for email reminders (MM), by country

	Start date	End date
All countries	29 January 2019	12 July 2019
Austria	1 February 2019	4 July 2019
Belgium	31 January 2019	14 June 2019
Bulgaria	31 January 2019	10 July 2019
Croatia	31 January 2019	24 June 2019
Cyprus	31 January 2019	8 May 2019
Czechia	1 February 2019	12 July 2019
Denmark	29 January 2019	13 June 2019
Estonia	1 February 2019	5 June 2019
Finland	31 January 2019	11 June 2019
France	31 January 2019	9 July 2019
Germany	29 January 2019	3 July 2019
Greece	1 February 2019	11 July 2019
Hungary	1 February 2019	4 July 2019
Ireland	1 February 2019	14 June 2019
Italy	29 January 2019	8 July 2019
Latvia	1 February 2019	6 June 2019
Lithuania	1 February 2019	6 June 2019
Luxembourg	29 January 2019	27 June 2019
Malta	31 January 2019	21 May 2019
Netherlands	29 January 2019	25 June 2019
Poland	4 February 2019	11 July 2019
Portugal	30 January 2019	9 July 2019
Romania	1 February 2019	10 July 2019
Slovakia	1 February 2019	11 July 2019
Slovenia	31 January 2019	19 June 2019
Spain	4 February 2019	11 July 2019
Sweden	1 February 2019	2 July 2019
United Kingdom	30 January 2019	8 July 2019

Email reminders for ER respondents were sent until 31 July, this due to the fact that some ER were only identified during the MM online interview (for more details, see Section 0), and as such, received their email invitation (and email reminders) after the MM respondents had completed the online survey. The majority of email reminders, however, was sent out before the main summer months: out of the 3,725 final email reminders sent to ER respondents, 97% was sent before July 2019.

Table 12: Fieldwork dates for email reminders (ER), by country

	Start date	End date
All countries	29 January 2019	31 July 2019
Austria	1 February 2019	17 June 2019
Belgium	5 February 2019	28 May 2019
Bulgaria	31 January 2019	2 July 2019
Croatia	1 February 2019	5 July 2019
Cyprus	1 February 2019	22 April 2019
Czechia	6 February 2019	4 July 2019
Denmark	30 January 2019	13 June 2019
Estonia	1 February 2019	31 May 2019
Finland	31 January 2019	18 June 2019
France	31 January 2019	18 July 2019
Germany	31 January 2019	10 July 2019
Greece	6 February 2019	25 July 2019
Hungary	1 February 2019	20 June 2019
Ireland	5 February 2019	5 June 2019
Italy	29 January 2019	17 July 2019
Latvia	6 February 2019	17 May 2019
Lithuania	1 February 2019	7 June 2019
Luxembourg	29 January 2019	15 July 2019
Malta	28 February 2019	7 May 2019
Netherlands	30 January 2019	31 July 2019
Poland	5 February 2019	11 July 2019
Portugal	1 February 2019	28 June 2019
Romania	1 February 2019	22 July 2019
Slovakia	5 February 2019	24 July 2019
Slovenia	31 January 2019	8 July 2019
Spain	4 February 2019	16 July 2019
Sweden	1 February 2019	2 July 2019
United Kingdom	30 January 2019	8 July 2019

10.1.3 CATI reminder fieldwork dates

In addition to the up to four email reminders, one reminder was conducted by telephone. The CATI reminder for MM respondents was scheduled after the 2nd email reminder, while the CATI reminder for ER respondents was scheduled immediately after the email invitation.

The CATI reminders for MM respondents were conducted between 1 February 2019 and 17 July 2019 and the CATI reminders for ER respondents were conducted between 24 January and 12 July 2019. At the start of the fieldwork, the local team in Czechia experienced some issues to schedule the CATI reminders, and the reminders were conducted later than intended during the first few weeks of fieldwork. The first CATI reminders in Czechia were conducted on 18 February 2019.

Table 13: Fieldwork dates for CATI reminders (MM), by country

	Start date	End date
All countries	1 February 2019	17 July 2019
Austria	11 February 2019	2 July 2019
Belgium	8 February 2019	28 May 2019
Bulgaria	7 February 2019	15 July 2019
Croatia	1 February 2019	18 June 2019
Cyprus	7 February 2019	23 April 2019
Czechia	18 February 2019	1 July 2019
Denmark	5 February 2019	6 June 2019
Estonia	14 February 2019	29 April 2019
Finland	7 February 2019	6 June 2019
France	7 February 2019	28 June 2019
Germany	5 February 2019	12 July 2019
Greece	8 February 2019	5 July 2019
Hungary	8 February 2019	26 June 2019
Ireland	8 February 2019	5 June 2019
Italy	4 February 2019	28 June 2019
Latvia	11 February 2019	27 May 2019
Lithuania	8 February 2019	30 May 2019
Luxembourg	5 February 2019	11 July 2019
Malta	8 February 2019	27 May 2019
Netherlands	5 February 2019	18 June 2019
Poland	11 February 2019	15 July 2019
Portugal	6 February 2019	9 July 2019
Romania	8 February 2019	5 July 2019
Slovakia	12 February 2019	3 July 2019
Slovenia	12 February 2019	12 June 2019
Spain	11 February 2019	17 July 2019
Sweden	11 February 2019	10 June 2019
United Kingdom	12 February 2019	28 June 2019

Table 14: Fieldwork dates for CATI reminders (ER), by country

	Start date	End date
All countries	24 January 2019	12 July 2019
Austria	4 February 2019	14 June 2019
Belgium	1 February 2019	28 May 2019
Bulgaria	28 January 2019	27 June 2019
Croatia	1 February 2019	13 June 2019
Cyprus	31 January 2019	28 March 2019
Czechia	18 February 2019	21 June 2019
Denmark	28 January 2019	7 June 2019
Estonia	6 February 2019	11 April 2019
Finland	29 January 2019	6 June 2019
France	4 February 2019	28 June 2019
Germany	1 February 2019	12 July 2019
Greece	4 February 2019	5 July 2019
Hungary	30 January 2019	14 June 2019
Ireland	29 January 2019	16 May 2019
Italy	24 January 2019	25 June 2019
Latvia	7 February 2019	15 May 2019
Lithuania	30 January 2019	22 May 2019
Luxembourg	5 February 2019	11 July 2019
Malta	25 February 2019	17 April 2019
Netherlands	25 January 2019	19 June 2019
Poland	7 February 2019	26 June 2019
Portugal	28 January 2019	19 June 2019
Romania	30 January 2019	28 June 2019
Slovakia	19 February 2019	2 July 2019
Slovenia	12 February 2019	13 June 2019
Spain	30 January 2019	24 June 2019
Sweden	8 February 2019	12 June 2019
United Kingdom	5 February 2019	28 June 2019

10.1.4 Fieldwork dates for the online MM and ER surveys

As noted above, an extension of the fieldwork period for the CATI screener was agreed between Ipsos and Eurofound and Cedefop. This extension also had an impact on the fieldwork closure for the MM and ER online surveys. In the original timetable, the online survey would have been closed on 5 July 2019; however, the online surveys were kept open until the end of July and the last MM and ER online surveys were completed on 25 July 2019.

As noted in Section 8.1.1, respondents received up to four email reminders and in the final email reminder, a date was included by which the survey should have been completed (this date was five working days after the date that the email was sent). It was decided that the online survey for MM respondents would stay open until the last deadline mentioned in all emails had passed. The last

invitations to MM respondents were sent on 19 June, and taking into account the public holiday on 5 July in Czechia (on public holidays, no email reminders were sent), the last deadline mentioned in an email reminder was 19 July 2019. Applying the same logic for the ER online survey was not possible, due to the fact additional ER respondents continued to be recruited via online MM interviews (even after the CATI screener fieldwork had been closed). It was decided to close the MM and ER online survey at the same time, at the end of July.[41]

The fieldwork extension for the CATI screener was not the only reason to extend the fieldwork period for the online MM and ER surveys. In a final attempt to increase the number of MM online completes and ER online completes, additional CATI reminders were being conducted at the end of June and the beginning of July (for more details, see Section 12.2). During these additional CATI reminders, respondents were informed that they had until 18 July to complete the online survey.

Finally, in Sweden, due to a translation error in the MM survey in the question about the establishment's main sector of activity (detected toward the end of the fieldwork period), 227 'screened-out' MM respondents were contacted again at the end of June 2019. Due to the translation error, these MM respondents had not been able to find a suitable NACE activity category among the ones listed in the survey and had provided a 'no answer' or 'don't know' response to the question; this response had caused them to be screened out of the survey (i.e. they could not complete the remainder of the online questionnaire). The CATI team in Sweden tried to contact these 'screened-out' MM respondents in an attempt to convince them to go back to the corrected survey link and still complete the online survey. Out of the, 227 MM respondents, 147 were reached by telephone and the remaining 80 were contacted again by email; 32 of these MM went back to the online survey and completed the remainder of the questionnaire.

[41] This meant that, for three ER respondents recruited via the online MM interview, the deadline mentioned in their last email was later than the actual fieldwork closure date.

Table 15: Fieldwork dates for online surveys (MM), by country

	Start date	End date
All countries	23 January 2019	25 July 2019
Austria	28 January 2019	8 July 2019
Belgium	25 January 2019	27 June 2019
Bulgaria	28 January 2019	9 July 2019
Croatia	25 January 2019	4 July 2019
Cyprus	25 January 2019	30 May 2019
Czechia	29 January 2019	11 July 2019
Denmark	23 January 2019	13 June 2019
Estonia	31 January 2019	8 July 2019
Finland	25 January 2019	18 June 2019
France	25 January 2019	25 July 2019
Germany	24 January 2019	15 July 2019
Greece	29 January 2019	22 July 2019
Hungary	28 January 2019	15 July 2019
Ireland	28 January 2019	11 June 2019
Italy	23 January 2019	19 July 2019
Latvia	28 January 2019	26 June 2019
Lithuania	28 January 2019	4 June 2019
Luxembourg	23 January 2019	5 July 2019
Malta	25 January 2019	27 June 2019
Netherlands	24 January 2019	10 July 2019
Poland	30 January 2019	19 July 2019
Portugal	24 January 2019	15 July 2019
Romania	29 January 2019	24 July 2019
Slovakia	29 January 2019	16 July 2019
Slovenia	25 January 2019	15 July 2019
Spain	28 January 2019	16 July 2019
Sweden	30 January 2019	15 July 2019
United Kingdom	24 January 2019	23 July 2019

Table 16: Fieldwork dates for online surveys (ER), by country

	Start date	End date
All countries	24 January 2019	25 July 2019
Austria	30 January 2019	24 July 2019
Belgium	5 February 2019	24 July 2019
Bulgaria	30 January 2019	22 July 2019
Croatia	29 January 2019	9 July 2019
Cyprus	1 February 2019	30 May 2019
Czechia	4 February 2019	25 July 2019
Denmark	28 January 2019	2 July 2019
Estonia	6 February 2019	8 July 2019
Finland	29 January 2019	3 July 2019
France	28 January 2019	15 July 2019
Germany	5 February 2019	12 July 2019
Greece	14 February 2019	19 July 2019
Hungary	30 January 2019	1 July 2019
Ireland	29 January 2019	20 May 2019
Italy	24 January 2019	17 July 2019
Latvia	8 February 2019	15 May 2019
Lithuania	30 January 2019	10 July 2019
Luxembourg	5 February 2019	11 July 2019
Malta	1 March 2019	22 April 2019
Netherlands	25 January 2019	21 June 2019
Poland	12 February 2019	23 July 2019
Portugal	4 February 2019	18 July 2019
Romania	30 January 2019	25 July 2019
Slovakia	31 January 2019	19 July 2019
Slovenia	31 January 2019	17 June 2019
Spain	1 February 2019	16 July 2019
Sweden	6 February 2019	18 July 2019
United Kingdom	10 February 2019	3 July 2019

10.2 Fieldwork progress

The tables on the following pages present the fieldwork progress, week-on-week, for the CATI screener interviews (focussing on screener where an MM respondent was invited to complete the online survey) and the online MM and ER interviews.

Fieldwork progress was monitored on a weekly basis, using a **detailed weekly fieldwork** report and a more concise **Excel 'RAG' report** aimed at providing an 'at a glance' red, amber or green summary of fieldwork progress, 1-2-line narrative with key issues and forecast fieldwork end date for each country. The fieldwork reports were reviewed and discussed during a weekly telephone calls between Eurofound and Cedefop and Ipsos, and, where necessary, actions were agreed to improve fieldwork progress.

Table 17: Number of CATI screeners completed (MM invitation sent), by week and by country

	Total	w0	w1	w2	w3	w4	w5	w6	w7	w8	w9	w10	w11	w12	w13	w14	w15	w16	w17	w18	w19	w20	w21
Austria	**2,273**	0	83	123	88	133	129	122	109	110	120	132	155	164	132	141	243	198	62	1	18	10	0
Belgium	**3,000**	0	93	372	400	417	274	232	250	251	255	159	65	111	66	12	31	10	2	0	0	0	0
Bulgaria	**3,502**	0	87	116	131	89	106	69	126	109	287	249	343	315	281	51	201	314	261	146	179	29	13
Croatia	**1,619**	0	114	82	101	159	217	77	33	80	178	82	55	58	37	69	135	93	16	31	2	0	0
Cyprus	**450**	0	37	26	39	40	52	39	42	40	37	47	51	0	0	0	0	0	0	0	0	0	0
Czechia	**1,833**	0	55	89	169	36	129	92	26	18	80	104	162	166	106	8	34	45	0	174	135	123	82
Denmark	**2,658**	24	117	166	250	243	281	275	241	304	268	110	147	22	30	92	43	45	0	0	0	0	0
Estonia	**1,014**	0	27	168	233	176	94	15	4	48	88	99	0	1	2	1	43	15	0	0	0	0	0
Finland	**2,356**	0	146	159	141	62	196	267	273	208	219	150	60	17	97	98	137	119	7	0	0	0	0
France	**2,727**	0	266	215	229	136	154	164	186	112	122	146	103	91	74	109	151	146	82	79	67	82	13
Germany	**4,101**	18	124	196	169	109	77	96	136	178	267	204	160	178	216	138	236	359	323	352	446	119	0
Greece	**2,754**	0	16	31	96	178	56	88	112	153	116	201	93	114	71	2	133	101	18	236	257	419	263
Hungary	**2,634**	0	100	200	265	203	76	46	195	86	78	35	102	123	46	94	254	270	280	173	4	4	0
Ireland	**1,176**	0	36	18	32	29	28	11	10	121	190	124	80	95	148	88	79	70	17	0	0	0	0
Italy	**3,536**	124	427	318	240	329	267	223	239	152	151	150	132	96	34	70	90	135	100	102	104	45	8
Latvia	**1,712**	0	32	22	80	112	62	163	280	93	112	213	196	152	135	36	3	20	0	0	0	0	1
Lithuania	**1,600**	0	75	93	133	155	177	96	126	192	164	157	114	27	17	8	27	39	0	0	0	0	0
Luxembourg	**1,011**	31	65	81	87	54	66	51	39	82	83	50	24	11	11	19	11	116	100	16	14	0	0
Malta	**344**	0	17	18	10	11	38	40	31	16	57	55	33	14	3	1	0	0	0	0	0	0	0
Netherlands	**2,620**	19	202	280	271	156	201	185	224	133	110	133	99	70	72	38	114	135	140	29	9	0	0
Poland	**2,452**	0	52	80	41	148	132	101	176	164	59	109	130	78	3	23	66	159	161	243	191	257	79
Portugal	**2,628**	9	284	224	111	156	137	92	63	61	83	177	130	62	43	147	250	268	207	51	44	27	2
Romania	**2,978**	0	123	190	146	202	182	107	170	159	141	81	124	70	44	10	50	36	200	280	344	272	47
Slovakia	**1,533**	0	77	48	16	54	67	46	37	54	154	134	130	80	32	7	45	133	96	67	111	100	45
Slovenia	**1,696**	0	187	135	110	171	62	46	29	15	31	98	169	67	19	47	128	209	134	39	0	0	0
Spain	**4,133**	0	104	234	249	262	222	236	194	332	284	323	246	102	146	199	244	108	206	133	106	130	73
Sweden	**2,582**	0	18	54	219	199	187	207	202	145	135	208	201	182	125	186	234	51	24	4	0	1	0
United Kingdom	**3,544**	24	167	155	158	152	159	191	226	258	326	364	233	187	89	183	132	105	64	129	172	61	9

Table 18: MM completed interviews, by week and by country

	Total	w0	w1	w2	w3	w4	w5	w6	w7	w8	w9	w10	w11	w12	w13	w14	w15	w16	w17	w18	w19	w20	w21	w22	w23	w24	w25	w26
Austria	**1,011**	0	15	31	38	61	51	60	44	49	48	61	53	80	47	58	89	81	68	33	24	10	7	1	1	1	0	0
Belgium	**1,016**	0	6	48	99	128	95	98	89	80	86	69	52	50	33	20	30	20	9	3	1	0	0	0	0	0	0	0
Bulgaria	**1,034**	0	12	21	27	43	41	22	22	27	42	48	84	92	97	19	54	92	81	69	63	40	24	11	3	0	0	0
Croatia	**564**	0	9	15	41	37	68	46	46	27	43	29	21	24	13	21	23	31	27	29	9	5	0	0	0	0	0	0
Cyprus	**124**	0	6	4	6	10	12	16	3	18	11	11	8	5	1	0	0	3	6	4	0	0	0	0	0	0	0	0
Czechia	**916**	0	9	20	47	33	32	49	28	21	25	62	55	71	65	51	28	42	11	42	58	66	64	26	9	2	0	0
Denmark	**1,022**	2	35	37	76	76	94	98	100	105	108	70	65	39	22	29	21	27	10	4	4	0	0	0	0	0	0	0
Estonia	**501**	0	2	36	69	89	59	25	42	34	30	41	17	17	9	3	9	11	4	2	0	0	0	0	0	2	0	0
Finland	**1,034**	0	31	51	40	50	58	84	93	103	96	88	61	33	35	26	52	62	45	17	8	1	0	0	0	0	0	0
France	**1,370**	0	38	60	95	98	73	85	93	72	71	58	53	50	64	49	53	77	61	49	45	32	31	41	11	4	4	3
Germany	**715**	1	13	20	30	42	22	14	19	15	39	35	43	31	27	23	45	44	58	49	55	38	27	18	3	1	3	0
Greece	**506**	0	1	6	7	12	18	19	13	28	16	32	27	19	14	3	17	18	12	20	22	46	34	44	31	22	23	2
Hungary	**1,099**	0	21	37	74	85	74	45	56	28	54	35	33	44	25	39	65	87	100	98	53	30	12	3	0	1	0	0
Ireland	**301**	0	1	5	6	8	7	10	7	11	31	21	29	23	20	15	27	47	21	8	2	2	0	0	0	0	0	0
Italy	**1,510**	20	53	93	121	147	118	98	103	100	97	62	61	54	28	27	35	44	42	51	55	33	44	12	10	1	0	1
Latvia	**518**	0	4	1	21	26	31	34	46	43	41	53	42	35	24	47	22	39	4	2	2	0	0	1	0	0	0	0
Lithuania	**516**	0	11	23	37	47	53	22	40	54	53	48	46	23	18	14	5	12	6	0	4	0	0	0	0	0	0	0
Luxembourg	**239**	2	7	6	18	19	25	19	15	9	19	10	22	4	2	3	6	11	17	10	3	5	5	0	1	1	0	0
Malta	**146**	0	1	4	1	4	9	8	13	9	19	24	20	12	5	5	2	0	0	4	3	1	0	2	0	0	0	0
Netherlands	**1,034**	0	38	75	90	74	80	77	75	67	52	71	50	29	18	26	31	44	42	43	26	17	6	2	0	1	0	0
Poland	**852**	0	10	12	17	37	39	47	40	46	36	43	41	33	17	3	16	35	39	60	60	82	50	39	34	13	3	0
Portugal	**981**	1	22	44	55	70	78	45	42	38	29	29	32	38	25	26	62	84	84	66	41	23	19	7	10	11	0	0
Romania	**825**	0	14	25	48	44	43	58	47	39	45	49	41	27	22	3	14	10	29	34	62	64	42	33	14	15	3	0
Slovakia	**367**	0	1	8	12	18	11	9	18	15	21	17	47	21	10	10	11	17	14	23	17	33	21	8	5	0	0	0
Slovenia	**560**	0	27	29	40	42	35	24	28	10	9	18	48	36	16	12	25	53	51	39	12	4	1	0	0	0	1	0
Spain	**1,485**	0	7	34	64	103	83	69	81	101	84	109	93	56	50	69	80	75	78	53	49	51	38	26	17	12	3	0
Sweden	**1,083**	0	3	3	38	78	65	82	94	71	64	55	90	67	58	63	98	59	36	15	8	3	2	1	22	7	1	0
United Kingdom	**701**	2	12	13	22	29	26	27	38	43	51	52	43	52	29	39	29	33	31	24	36	19	32	11	7	0	0	1

Table 19: ER completed interviews, by week and by country

	Total	w0	w1	w2	w3	w4	w5	w6	w7	w8	w9	w10	w11	w12	w13	w14	w15	w16	w17	w18	w19	w20	w21	w22	w23	w24	w25	w26
Austria	**166**	0	1	3	10	6	9	6	9	6	14	8	4	5	4	11	19	11	8	4	0	1	11	9	2	3	1	1
Belgium	**100**	0	0	1	8	10	10	12	11	12	4	13	4	5	1	2	3	1	1	0	0	0	0	0	0	1	1	0
Bulgaria	**101**	0	1	3	5	2	3	2	2	6	6	8	5	14	10	0	4	11	2	2	3	2	5	0	0	2	2	1
Croatia	**72**	0	1	7	4	4	8	4	5	7	4	4	5	3	0	1	2	5	2	3	0	0	1	0	1	1	0	0
Cyprus	**3**	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Czechia	**46**	0	0	0	0	2	2	2	1	2	0	3	2	6	1	5	6	3	2	2	1	1	2	0	0	1	0	2
Denmark	**134**	0	8	8	12	9	19	15	18	9	10	7	6	3	0	2	2	1	0	2	0	0	0	3	0	0	0	0
Estonia	**17**	0	0	3	2	1	1	1	1	0	0	2	2	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0
Finland	**470**	0	10	23	18	13	22	26	34	40	52	40	36	17	14	23	24	39	25	8	2	1	0	0	3	0	0	0
France	**429**	0	3	29	32	32	22	36	33	15	19	14	21	23	15	18	18	24	21	7	10	11	11	7	5	2	1	0
Germany	**67**	0	0	4	0	1	3	3	2	2	4	3	4	3	4	1	1	6	5	5	4	4	1	1	2	3	1	0
Greece	**9**	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	1
Hungary	**34**	0	1	2	2	4	3	1	1	2	1	1	0	1	1	0	3	4	1	1	1	1	1	1	1	0	0	0
Ireland	**6**	0	1	0	0	0	0	0	0	0	1	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Italy	**188**	2	3	13	15	13	15	18	7	11	19	8	11	4	3	4	5	7	3	3	4	1	2	0	4	12	1	0
Latvia	**12**	0	0	0	1	0	0	2	1	2	0	0	2	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0
Lithuania	**133**	0	4	5	8	17	12	8	5	17	10	11	18	6	6	1	2	0	2	0	0	0	0	0	0	1	0	0
Luxembourg	**39**	0	0	2	1	2	3	2	2	0	0	3	3	2	1	0	2	1	3	5	0	1	0	0	4	2	0	0
Malta	**5**	0	0	0	0	0	0	1	1	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Netherlands	**341**	0	7	27	29	25	26	28	36	24	18	20	16	6	4	11	12	9	13	16	5	5	4	0	0	0	0	0
Poland	**48**	0	0	0	2	0	1	3	1	6	2	3	1	4	0	0	0	3	3	3	1	6	0	1	4	4	0	0
Portugal	**17**	0	0	1	1	2	3	1	0	0	0	1	1	1	0	0	0	0	1	1	1	0	1	0	0	1	1	0
Romania	**77**	0	1	6	3	6	5	4	6	3	1	5	7	2	3	0	0	1	1	4	3	5	3	6	1	1	0	0
Slovakia	**27**	0	0	1	0	1	2	0	1	2	1	1	3	5	3	0	0	1	1	0	1	2	0	0	1	0	0	1
Slovenia	**23**	0	0	3	2	2	2	2	0	0	0	1	1	2	1	1	1	2	1	1	0	0	1	0	0	0	0	0
Spain	**196**	0	0	7	13	7	7	12	6	13	10	11	9	6	9	5	13	10	6	16	7	10	3	5	6	4	1	0
Sweden	**309**	0	0	2	3	16	15	29	27	21	19	17	21	17	10	17	30	22	14	10	1	3	12	0	1	0	2	0
United Kingdom	**26**	0	0	0	1	0	0	3	0	0	2	4	1	1	0	3	0	0	3	2	2	1	1	1	1	0	0	0

11. Fieldwork outcomes

11.1 Planned vs. achieved number of interviews

The first column in the table below provides for each country the planned number of MM online interviews; the planned number of MM online interviews summed across all countries was 22,050.[42] At the end of the fieldwork for ECS 2019, the total number of MM online interviews achieved was 22,030. After quality checks (for more details, see Section 14.2.3), 161 MM online interviews were flagged for low quality, bringing the final number of MM online interviews to 21,869 (99% of the planned number of interviews).

The planned MM sample size was reached in 16 out of 28 countries. In seven countries, more than 90% (but less than 100%) of the planned MM online interviews was collected (Czechia, France, Italy, Luxembourg, Portugal, Spain and the UK). In five countries, less than 90% of the target number of online MM interviews was collected (Cyprus, Malta, Germany, Poland and Romania). As discussed in Section 6.3, in Cyprus and Malta, the gross sample available was smaller than anticipated. The reasons for not achieving the target number of online MM interviews in Germany, Romania and Poland are discussed in the next paragraphs.

The total number of ER online interviews achieved at the end of the fieldwork period was 3,093. After quality checks, 22 MM online interviews were flagged for low quality, bringing the final number of ER online interviews to 3,073. In 1,835 establishments, both an MM and an ER online interview was achieved.

Table 20: Planned and achieved samples, MM and ER, by country

	MM online interviews			**ER online interviews**		**Establishments which had both an MM and ER online interview**
	Planned	**Achieved**	**Dropped due to quality issues**	**Achieved**	**Dropped due to quality issues**	
All countries	*22,050*	21,869	161	3,073	22	1,835
Austria	*1,000*	1,010	1	163	3	95
Belgium	*1,000*	1,011	5	100	0	51
Bulgaria	*1,000*	1,024	10	100	1	60
Croatia	*500*	560	4	71	1	46
Cyprus	*250*	122	2	3	0	3
Czechia	*1,000*	904	12	46	0	33
Denmark	*1,000*	1,011	11	134	0	96
Estonia	*500*	501	0	17	0	10
Finland	*1,000*	1,032	2	467	3	258
France	*1,500*	1,360	10	425	4	284
Germany	*1,000*	711	4	66	1	31
Greece	*500*	501	5	8	1	2
Hungary	*1,000*	1,087	12	34	0	26
Ireland	*250*	300	1	6	0	2
Italy	*1,500*	1,498	12	188	0	127
Latvia	*500*	514	4	11	1	8
Lithuania	*500*	510	6	131	2	79

[42] This was the planned sample after reductions to the originally planned sample sizes agreed for some countries on the basis of a feasibility assessment following the pilot, but increased again with the additional interview agreed in Finland and the UK during main stage fieldwork. See Section 4.1 for more details.

	MM online interviews			ER online interviews		Establishments which had both an MM and ER online interview
	Planned	**Achieved**	**Dropped due to quality issues**	**Achieved**	**Dropped due to quality issues**	
Luxembourg	*250*	237	2	39	0	23
Malta	*250*	145	1	5	0	3
Netherlands	*1,000*	1,030	4	339	2	174
Poland	*1,150*	842	10	48	0	34
Portugal	*1,000*	973	8	17	0	8
Romania	*1,000*	815	10	76	1	44
Slovakia	*350*	361	6	27	0	14
Slovenia	*500*	556	4	23	0	15
Spain	*1,500*	1,477	8	196	0	134
Sweden	*1,000*	1,080	3	307	2	164
United Kingdom	*700*	697	4	26	0	11

Achieved number of MM online interviews in Germany

At the end of the fieldwork for ECS 2019, the total number of MM online interviews in Germany was 715 out of a target of 1,000 interviews. After further quality checks, five MM online interviews were flagged for low quality, bringing the final number of MM online interviews to 710, falling short of the target by 290 interviews.

During first four weeks of CATI screener fieldwork, the CAWI conversion was at 5.0 (150 MM online completes out of 754 screeners completed). From week 4 onwards, however, the CAWI yield deteriorated, and the final CAWI conversion observed for the main stage was 6.3 (715 MM online completes out of 4,522 screeners completed). The CAWI yield in Germany was the lowest observed across the countries in ECS 2019 and measures implemented to improve the CAWI yield made no difference to the fieldwork outcomes.

In order to increase the number of screeners completed, a larger gross sample than originally foreseen was contacted. The original gross sample size for Germany was set at 20,328 establishments; by the end of the fieldwork period, 24,867 establishments had been contacted (122% of the planned gross sample size).

Achieved number of MM online interviews in Poland

At the end of the fieldwork for ECS 2019, the total number of MM online interviews in Poland was 852 out of a target of 1,150 interviews. After further quality checks, 10 MM online interviews were flagged for low quality, bringing the final number of MM online interviews to 842, falling short of the target by 308 interviews.

Following the pilot survey, an assessment was made of the number of MM online interviews that could be achieved in each country. Given the poor pilot CATI and CAWI yield in Poland, the target number of MM online interviews for main stage fieldwork was reduced from 1,500 to 1,150. With a CAWI conversion assumption of 3.5 (as in the pilot), the expected gross sample size for Poland was roughly 55,000 companies, and the final CAWI conversion observed during the main stage was slightly better than in the pilot – at 3.2.

By 19 June (fieldwork closure), 55,367 establishments[43] had been contacted (and less than 10% of records had an 'open' status). The target number of CATI screeners, however, was not reached due

[43] 55,309 companies from the sample orders and 58 extra establishments in multi-site companies, selected via the sample step in original screener interviews.

to the challenges to increase the CATI yield in the main stage (and due to limitations with respect to budget and time).

Achieved number of MM online interviews in Romania

At the end of the fieldwork for ECS 2019, the total number of MM online interviews in Romania was 825 out of a target of 1,000 interviews. After further quality checks, 10 MM online interviews were flagged for low quality, bringing the final number of MM online interviews to 815, falling short of the target by 185 interviews.

After the pilot, the target number of CATI screeners in Romania was set at 2,900, but this number had to be increased a number of times, until the final target was equal to 3,498 screeners. The increase in the target number of CATI screeners was needed due to the lower CATI and CAWI yields in the main stage compared to the pilot survey.

An outcome of the lower CATI and CAWI yield in the main stage was that the original sample ordered was not sufficient to reach the target number of screeners, and that a second sample order had to be placed. By the end of the fieldwork period, 19,474 companies[44] had been contacted, meaning that the size of sample contacted was 78% higher than the originally planned gross sample size. Due to the fact that the extra sample order did not contain large companies, the CATI yield was lower than for the original sample; and, as such, fewer screeners than foreseen were completed. But there was also a large difference in CAWI yield between the original sample and the additional sample, a difference that could only be observed at the end of the fieldwork period, when no further actions could be taken.

11.2 CATI yield and CAWI conversion

11.2.1 CATI screener survey response

The following table presents fieldwork outcome rates for the CATI screener interviews. The following rates have been calculated, for each country:

- **Yield rate:** proportion of 'completed' screeners out of total sample dialled; a completed screener means that the MM respondents responded to all relevant question in the screener.
- **Refusal rate:** proportion of establishments where no information was collected due to a refusal to participate in the screener interview out of all sample dialled
- **Non-contact rate:** proportion of establishments that could not be reached, out of all 'working' numbers contacted (i.e. excluding inoperative telephone numbers).
- **Bad number rate:** proportion of inoperative telephone numbers (with on outcome code of 'wrong telephone number', 'fax/modem', 'household number' etc.) out of the total sample dialled.

The last column in the table below shows the **survey eligibility rate –** the proportion of eligible establishments out of all establishments reached during the CATI screener fieldwork (i.e. an interviewer spoke to someone at the establishment and the name and address of the establishment was confirmed).

In five EU Member States, a 'no size' stratum was required to improve sampling frame coverage (Austria, Cyprus, Greece, Luxembourg and Malta). This strategy involved including cases in the survey where there was no size information (number of employees) listed on the sampling frame. Due to the inclusion of this stratum, the survey eligibility rate in these countries tended to be lower than in most other countries. Table 21 shows that the survey eligibility rate was 38% in Austria and 51% in Luxembourg.

[44] 19,361 companies from the sample orders and 113 extra establishments in multi-site companies, selected via the sample step in original screener interviews.

In **Greece**, the survey eligibility rate was 64%; this figure was higher than in the pilot, as not all cases in the 'no size' stratum were contacted. Including a 'no size' stratum in the survey reduces fieldwork efficiency and adds to survey costs. Given that fieldwork progress in Greece was slow, it was decided to stop calling the 'no size' stratum towards the end of the CATI screener fieldwork period.

In **Cyprus**, the survey eligibility rate was also higher than in other countries with a 'no size' stratum. As explained in Section 6.3, a new sampling frame was received before the start of the main stage fieldwork, containing only cases that the statistical authority confirmed as having 10 or more employees, although detailed size information was not provided. The 'no size' cases for main stage included 501 cases without size, because the case could not be matched to the 2011 database, and 926 cases where the size in 2011 was 0-9 employees. All cases were included in the survey given the statistical authority deems the company to have 10 or more employees at the time when the sampling frame was received.

In **Malta**, the survey eligibility rate was just 20%. However, the 'no size' stratum only offers a partial explanation for this outcome. When interviewers reported during the screener interview that there was no suitable MM respondent in the establishment, these cases were also counted as 'ineligible'. The very low survey eligibility rate in Malta can be explained by the proportion of establishments were no suitable MM respondent could be identified. A number of issues were observed with the sample and interviewers reported contacting a substantial number of shell companies and companies without employees in Malta. In the end, about 50% of the sample was classified as 'unusable'.

Table 21: CATI screener outcome rates, by country

Country	**Sample dialled**	**Completed screeners**	**Yield rate** (out of dialled)	**Refusal rate** (out of dialled)	**Non-contact rate** (out of working numbers)	**Bad number rate** (out of dialled)	**Survey eligibility rate** (out of confirmed)
All countries	**419,159**	**67,285**	***16%***	***42%***	***25%***	***11%***	***64%***
Austria	17,961	2,274	*13%*	*54%*	*6%*	*6%*	*38%*
Belgium	13,569	3,057	*23%*	*44%*	*19%*	*7%*	*78%*
Bulgaria	13,449	3,835	*29%*	*17%*	*20%*	*27%*	*70%*
Croatia	5,068	1,666	*33%*	*25%*	*28%*	*12%*	*86%*
Cyprus	3,735	463	*12%*	*48%*	*28%*	*6%*	*77%*
Czechia	33,330	2,006	*6%*	*69%*	*16%*	*8%*	*79%*
Denmark	11,275	2,660	*24%*	*35%*	*27%*	*10%*	*79%*
Estonia	4,572	1,069	*23%*	*32%*	*26%*	*23%*	*92%*
Finland	7,307	2,357	*32%*	*34%*	*22%*	*6%*	*84%*
France	22,311	2,761	*12%*	*24%*	*37%*	*27%*	*56%*
Germany	24,867	4,522	*18%*	*54%*	*12%*	*13%*	*82%*
Greece	8,966	2,800	*31%*	*43%*	*3%*	*5%*	*64%*
Hungary	21,018	2,935	*14%*	*44%*	*34%*	*7%*	*83%*
Ireland	8,158	1,192	*15%*	*33%*	*45%*	*8%*	*85%*
Italy	24,487	3,585	*15%*	*30%*	*37%*	*12%*	*59%*
Latvia	4,819	1,828	*38%*	*27%*	*12%*	*9%*	*72%*
Lithuania	3,242	1,616	*50%*	*33%*	*8%*	*4%*	*91%*
Luxembourg	4,724	1,068	*23%*	*21%*	*14%*	*24%*	*51%*

Country	**Sample dialled**	**Completed screeners**	**Yield rate** (out of dialled)	**Refusal rate** (out of dialled)	**Non-contact rate** (out of working numbers)	**Bad number rate** (out of dialled)	**Survey eligibility rate** (out of confirmed)
Malta	1,813	351	*19%*	*4%*	*0%*	*0%*	*20%*
Netherlands	13,634	2,704	*20%*	*44%*	*12%*	*13%*	*62%*
Poland	55,367	2,694	*5%*	*41%*	*31%*	*7%*	*21%*
Portugal	15,417	2,716	*18%*	*68%*	*1%*	*5%*	*69%*
Romania	19,474	3,211	*16%*	*47%*	*25%*	*9%*	*80%*
Slovakia	8,606	1,572	*18%*	*40%*	*32%*	*12%*	*90%*
Slovenia	3,734	1,737	*47%*	*31%*	*10%*	*8%*	*91%*
Spain	35,364	4,266	*12%*	*40%*	*35%*	*8%*	*61%*
Sweden	12,834	2,790	*22%*	*37%*	*26%*	*12%*	*80%*
United Kingdom	20,058	3,550	*18%*	*29%*	*41%*	*11%*	*76%*

11.2.2 Online survey response

The fieldwork outcomes of the online surveys can be assessed by looking at:

Yield rate: proportion of completed online interviews out of total number of invitations sent (In Table 24, the overall yield rate of ECS 2019 is calculated as the number of MM online completes out of the total sample dialled.)

Ineligibility rate: proportion of respondents 'screened out' (stopped by the script) due to ineligibility (e.g. MM changed employee size in the online interview to less than 10 employees)

Break-off rate: proportion of respondents who started completing the survey (and answered the first few screening/eligibility questions), but did not continue with the remainder of the questionnaire

Non-response rate: proportion of MM/ER invited to complete the online survey, but who did not complete the survey (respondents who only visited the landing page of the survey are counted among the non-respondents)

Unsubscribed rate: proportion of MM/ER who 'unsubscribed' from the survey and indicated that he/she did not want to receive any further emails

The yield rate for the MM online survey varied between 17% in Germany and 50% in France, while the yield rate for the ER online survey varied between 11% in Ireland and 56% in Sweden.

Table 22: Online survey response rate (MM), by country

	Invitation sent for MM survey (at the end of screener interview)	**Completed MM survey** (incl. dropped low-quality cases)	**Yield rate** (completed MM out of invitations sent)	**Ineligible** (or technical problem) **rate**	**Break-off rate,** eligibility assessed	**Non-response rate**	**Unsubscribed rate**
All countries	**64,466**	**22,030**	***34%***	***2%***	***8%***	***54%***	***2%***
Austria	2,273	1,011	*44%*	*2%*	*7%*	*45%*	*1%*
Belgium	3,000	1,016	*34%*	*2%*	*10%*	*52%*	*2%*
Bulgaria	3,502	1,034	*30%*	*2%*	*6%*	*61%*	*2%*
Croatia	1,619	564	*35%*	*2%*	*7%*	*54%*	*1%*
Cyprus	450	124	*28%*	*2%*	*7%*	*63%*	*1%*
Czechia	1,833	916	*50%*	*2%*	*10%*	*36%*	*1%*
Denmark	2,658	1,022	*38%*	*2%*	*9%*	*49%*	*1%*
Estonia	1,014	501	*49%*	*1%*	*7%*	*41%*	*1%*
Finland	2,356	1,034	*44%*	*1%*	*6%*	*49%*	*1%*
France	2,727	1,370	*50%*	*2%*	*11%*	*36%*	*0%*
Germany	4,101	715	*17%*	*2%*	*5%*	*71%*	*5%*
Greece	2,754	506	*18%*	*1%*	*8%*	*71%*	*1%*
Hungary	2,634	1,099	*42%*	*3%*	*9%*	*45%*	*1%*
Ireland	1,176	301	*26%*	*2%*	*8%*	*63%*	*2%*
Italy	3,536	1,510	*43%*	*2%*	*7%*	*47%*	*1%*
Latvia	1,712	518	*30%*	*1%*	*12%*	*56%*	*1%*
Lithuania	1,600	516	*32%*	*1%*	*11%*	*55%*	*1%*
Luxembourg	1,011	239	*24%*	*3%*	*8%*	*64%*	*2%*
Malta	344	146	*42%*	*3%*	*16%*	*38%*	*1%*
Netherlands	2,620	1,034	*39%*	*1%*	*10%*	*46%*	*3%*
Poland	2,452	852	*35%*	*2%*	*8%*	*54%*	*1%*
Portugal	2,628	981	*37%*	*2%*	*10%*	*50%*	*0%*
Romania	2,978	825	*28%*	*2%*	*10%*	*60%*	*1%*
Slovakia	1,533	367	*24%*	*2%*	*8%*	*64%*	*3%*
Slovenia	1,696	560	*33%*	*1%*	*8%*	*57%*	*1%*
Spain	4,133	1,485	*36%*	*1%*	*10%*	*51%*	*1%*
Sweden	2,582	1,083	*42%*	*9%*	*9%*	*39%*	*1%*
United Kingdom	3,544	701	*20%*	*1%*	*7%*	*70%*	*2%*

Table 23: Online survey response rate (ER), by country

	Invitation sent for ER survey (at the end of screener interview)	**Completed ER survey** (incl. dropped low-quality cases)	**Yield rate (**completed ER out of invitations sent)	**Ineligible** (or technical problem) **rate**	**Break-off rate,** eligibility assessed	**Non-response rate**	**Unsubscribed rate**
All countries	**7,033**	**3,095**	***44%***	***2%***	***5%***	***48%***	***1%***
Austria	317	166	*52%*	*3%*	*5%*	*38%*	*1%*
Belgium	438	100	*23%*	*5%*	*5%*	*65%*	*3%*
Bulgaria	248	101	*41%*	*2%*	*6%*	*51%*	*1%*
Croatia	160	72	*45%*	*1%*	*5%*	*47%*	*2%*
Cyprus	9	3	*33%*	*0%*	*11%*	*56%*	*0%*
Czechia	108	46	*43%*	*1%*	*6%*	*49%*	*2%*
Denmark	359	134	*37%*	*1%*	*5%*	*55%*	*1%*
Estonia	45	17	*38%*	*0%*	*4%*	*51%*	*7%*
Finland	882	470	*53%*	*1%*	*3%*	*41%*	*1%*
France	798	429	*54%*	*1%*	*6%*	*40%*	*0%*
Germany	215	67	*31%*	*0%*	*1%*	*65%*	*3%*
Greece	28	9	*32%*	*0%*	*11%*	*57%*	*0%*
Hungary	75	34	*45%*	*0%*	*3%*	*51%*	*1%*
Ireland	56	6	*11%*	*7%*	*7%*	*73%*	*2%*
Italy	345	188	*54%*	*3%*	*4%*	*38%*	*1%*
Latvia	36	12	*33%*	*8%*	*8%*	*47%*	*3%*
Lithuania	354	133	*38%*	*1%*	*7%*	*54%*	*1%*
Luxembourg	118	39	*33%*	*2%*	*6%*	*55%*	*4%*
Malta	13	5	*38%*	*15%*	*8%*	*31%*	*8%*
Netherlands	713	341	*48%*	*2%*	*6%*	*42%*	*3%*
Poland	129	48	*37%*	*3%*	*3%*	*56%*	*1%*
Portugal	33	17	*52%*	*0%*	*9%*	*39%*	*0%*
Romania	307	77	*25%*	*2%*	*7%*	*64%*	*2%*
Slovakia	82	27	*33%*	*0%*	*6%*	*60%*	*1%*
Slovenia	62	23	*37%*	*0%*	*6%*	*55%*	*2%*
Spain	389	196	*50%*	*1%*	*5%*	*43%*	*1%*
Sweden	552	309	*56%*	*1%*	*4%*	*38%*	*1%*
United Kingdom	162	26	*16%*	*0%*	*5%*	*77%*	*2%*

Table 24: Overall yield rate, CATI screener and MM online survey, by country

	Sample dialled	**Invitation sent for MM survey** (at the end of screener interview)	**Completed MM survey**	**Response rate** (out of sample dialled)
All countries	**419,159**	**64,466**	**22,030**	***5%***
Austria	17,961	2,273	1,011	*6%*
Belgium	13,569	3,000	1,016	*7%*
Bulgaria	13,449	3,502	1,034	*8%*
Croatia	5,068	1,619	564	*11%*
Cyprus	3,735	450	124	*3%*
Czechia	33,330	1,833	916	*3%*
Denmark	11,275	2,658	1,022	*9%*
Estonia	4,572	1,014	501	*11%*
Finland	7,307	2,356	1,034	*14%*
France	22,311	2,727	1,370	*6%*
Germany	24,867	4,101	715	*3%*
Greece	8,966	2,754	506	*6%*
Hungary	21,018	2,634	1,099	*5%*
Ireland	8,158	1,176	301	*4%*
Italy	24,487	3,536	1,510	*6%*
Latvia	4,819	1,712	518	*11%*
Lithuania	3,242	1,600	516	*16%*
Luxembourg	4,724	1,011	239	*5%*
Malta	1,813	344	146	*8%*
Netherlands	13,634	2,620	1,034	*8%*
Poland	55,367	2,452	852	*2%*
Portugal	15,417	2,628	981	*6%*
Romania	19,474	2,978	825	*4%*
Slovakia	8,606	1,533	367	*4%*
Slovenia	3,734	1,696	560	*15%*
Spain	35,364	4,133	1,485	*4%*
Sweden	12,834	2,582	1,083	*8%*
United Kingdom	20,058	3,544	701	*3%*

11.3 Detailed outcomes of the CATI screener step

11.3.1 Interview duration

The median duration for CATI screener interviews, averaged across all countries, was 5 minutes and 23 seconds. The following table presents the duration (in seconds) for each of the survey blocks in the screener questionnaire, distinguishing between countries that used an establishment-level

frame and countries that used a company-level frame. Two versions of the screener questionnaire were developed, for each type of sample frame. In countries using a company-level frame, it was necessary to have an additional sampling stage as part of the screener interview, given the survey population was establishments, rather than companies. This sample stage was covered in Blocks 6 to 9 and was only answered by MM respondents in multi-site companies.

Block 3 was, on average, the longest block in terms of duration; during this block, the interviewer explained the purpose of ECS 2019 and collected the contact details of the MM respondent. Section 0 provides more details about this block and reports the proportion of MM who refused to provide their contact details.

Table 25: Duration (in seconds) per survey block, by sample frame

	Countries using an establishment frame	**Countries using a company frame**
Block 1: Contacting MM respondent	35	28
Block 2: Employee size and sector of activity	39	38
Block 3: Contact details MM	73	83
Block 4: ER presence	20	17
Block 5: Contact details ER	29	19
Block 6: Selection step – Number of 10+ establishments	-	17
Block 7: Selection step – Listing and random selection	-	59
Block 8: Selection step – Alphabet approach	-	53
Block 9: Contact details of additional establishments	-	33
Block 10: Closing questions	42	33
Block 11: Review of contact details	32	29

11.3.2 Break-offs in screener interviews

As noted in Section 7.2, information about the establishment (number of employees and main sector of activity) was collected at the start of the CATI screener to assess eligibility. Table 26 presents the total number of establishments contacted, for which eligibility was confirmed (70,675 establishments). In total, across all countries, 2,609 CATI screener interviews (4%) were broken off after eligibility was assessed. The proportion of MM respondents who broke off after responding to the eligibility questions varied from 1% in Denmark, Finland, Greece and Malta to 10% in Poland. The majority of MM respondents who broke off, did so at the section to assess the presence of employee representation (1,759 respondents).

Table 26: Break-offs in screener interviews after eligibility questions, by country

	Total establish-ments, eligibility confirmed	**Break-off rate** (after size and sector questions)	**Break-off at MM contact details**	**Break-off at ER section**	**Break-off in selection step**	**Break-off at closing questions**
All countries	**70,675**	***4%***	**391**	**1,759**	**239**	**220**
Austria	2,312	*2%*	4	34	-	0
Belgium	3,245	*4%*	10	75	31	10
Bulgaria	4,002	*2%*	6	41	13	1
Croatia	1,751	*3%*	3	39	9	7

	Total establish-ments, eligibility confirmed	**Break-off rate** (after size and sector questions)	**Break-off at MM contact details**	**Break-off at ER section**	**Break-off in selection step**	**Break-off at closing questions**
Cyprus	486	*3%*	0	12	5	0
Czechia	2,180	*7%*	29	83	15	17
Denmark	2,695	*1%*	11	22	-	2
Estonia	1,112	*3%*	4	26	2	5
Finland	2,369	*1%*	0	9	-	3
France	2,820	*2%*	10	40	-	9
Germany	4,654	*3%*	17	110	-	5
Greece	2,897	*1%*	4	14	6	0
Hungary	3,136	*3%*	4	53	21	16
Ireland	1,243	*4%*	3	42	-	6
Italy	3,882	*8%*	54	227	-	16
Latvia	1,912	*2%*	1	34	7	2
Lithuania	1,671	*3%*	1	40	2	2
Luxembourg	1,094	*2%*	4	22	-	0
Malta	356	*1%*	0	0	2	0
Netherlands	2,803	*4%*	16	74	-	9
Poland	3,048	*10%*	82	189	27	17
Portugal	2,888	*3%*	5	64	14	9
Romania	3,546	*7%*	19	133	41	40
Slovakia	1,632	*2%*	3	22	6	9
Slovenia	1,809	*3%*	3	35	7	4
Spain	4,524	*5%*	27	141	31	12
Sweden	2,972	*6%*	65	106	-	11
United Kingdom	3,636	*2%*	6	72	-	8

11.3.3 CATI screener MM refusals to provide contact details

In total, 67,285 screeners were recorded as 'completed', this means that the MM respondents responded to all relevant question in the screener. At the end of the fieldwork period, 64,466 email invitations had been sent to MM respondents. This number is lower than the total number of online screeners 'completed' due to two main reasons:

- 3% of MM respondents (1,944 in total) agreed to participate in the screener interview and provided information on their establishment (employee size and main sector of activity) and on the presence of an ER in the establishment, but refused to give their email address or said they were unwilling or unable to complete the survey online;
- 875 screeners were completed with establishments that were ineligible because they had less than 10 employees, but where other 'additional' establishments were eligible (sample selection step) – see the last two columns of Table 27.

Looking at differences in the proportion of MM respondents who refused (or were unable) to provide their email address, it can be noted that this proportion was the highest in Czechia (7%),

Germany (9%), Poland (8%) and Sweden (7%). In Austria, Belgium, Denmark, Finland, Greece, Malta, Portugal and the UK, on the other hand, just a handful of MM respondents did not provide their email address.

Table 27: Completed screeners, MM refusals (and non-eligibility), by country

	Completed screeners	**MM invitation sent**	**Completed, but no MM recruited**	**% refusals** (out of eligible establish-ments)	**Non-eligible establish-ment, other establish-ment(s) recruited**	**Non-eligible establish-ment, selection step refusal**
All countries	**67,285**	**64,466**	**1,944**	***3%***	**384**	**491**
Austria	2,274	2,273	1	***0%***	-	-
Belgium	3,057	3,000	5	***0%***	27	25
Bulgaria	3,835	3,502	196	***5%***	49	88
Croatia	1,666	1,619	13	***1%***	12	22
Cyprus	463	450	5	***1%***	3	5
Czechia	2,006	1,833	133	***7%***	21	19
Denmark	2,660	2,658	2	***0%***	-	-
Estonia	1,069	1,014	52	***5%***	3	0
Finland	2,357	2,356	1	***0%***	-	-
France	2,761	2,727	34	***1%***	-	-
Germany	4,522	4,101	421	***9%***	-	-
Greece	2,800	2,754	2	***0%***	18	26
Hungary	2,935	2,634	94	***3%***	80	127
Ireland	1,192	1,176	16	***1%***	-	-
Italy	3,585	3,536	49	***1%***	-	-
Latvia	1,828	1,712	84	***5%***	12	20
Lithuania	1,616	1,600	14	***1%***	0	2
Luxembourg	1,068	1,011	57	***5%***	-	-
Malta	351	344	1	***0%***	4	2
Netherlands	2,704	2,620	84	***3%***	-	-
Poland	2,694	2,452	209	***8%***	12	21
Portugal	2,716	2,628	11	***0%***	51	26
Romania	3,211	2,978	145	***5%***	37	51
Slovakia	1,572	1,533	16	***1%***	21	2
Slovenia	1,737	1,696	17	***1%***	17	7
Spain	4,266	4,133	68	***2%***	17	48
Sweden	2,790	2,582	208	***7%***	-	-
United Kingdom	3,550	3,544	6	***0%***	-	-

Table 28 gives more detail about the 1,944 MM respondents who participated in the screener interview but did not provide an email address. The majority (64%) of these respondents refused to

participate in the online survey, another 17% refused to give their email address and 15% said they were not willing or not able to complete the survey online. Finally, 4% replied that they did not have an email address.

Table 28: Frequency distribution of reasons for not providing email address (MM), by country

	Completed, but no MM recruited (Base)	**Respondent refuses to participate**	**Respondent refuses to give email address**	**Respondent not willing/not able to complete the survey online**	**Respondent has no email address**
All countries	**1,944**	***64%***	***17%***	***15%***	***4%***
Austria	1	*100%*	*0%*	*0%*	*0%*
Belgium	5	*20%*	*20%*	*0%*	*60%*
Bulgaria	196	*41%*	*40%*	*8%*	*11%*
Croatia	13	*8%*	*46%*	*15%*	*31%*
Cyprus	5	*0%*	*0%*	*0%*	*100%*
Czechia	133	*51%*	*42%*	*4%*	*3%*
Denmark	2	*50%*	*0%*	*0%*	*50%*
Estonia	52	*98%*	*0%*	*2%*	*0%*
Finland	1	*0%*	*0%*	*100%*	*0%*
France	34	*88%*	*6%*	*0%*	*6%*
Germany	421	*92%*	*1%*	*6%*	*0%*
Greece	2	*0%*	*0%*	*50%*	*50%*
Hungary	94	*36%*	*12%*	*49%*	*3%*
Ireland	16	*38%*	*13%*	*31%*	*19%*
Italy	49	*71%*	*0%*	*27%*	*2%*
Latvia	84	*50%*	*48%*	*2%*	*0%*
Lithuania	14	*64%*	*7%*	*21%*	*7%*
Luxembourg	57	*79%*	*16%*	*0%*	*5%*
Malta	1	*100%*	*0%*	*0%*	*0%*
Netherlands	84	*49%*	*1%*	*50%*	*0%*
Poland	209	*66%*	*18%*	*15%*	*1%*
Portugal	11	*82%*	*18%*	*0%*	*0%*
Romania	145	*32%*	*21%*	*37%*	*10%*
Slovakia	16	*38%*	*31%*	*25%*	*6%*
Slovenia	17	*76%*	*18%*	*6%*	*0%*
Spain	68	*21%*	*60%*	*16%*	*3%*
Sweden	208	*89%*	*1%*	*9%*	*0%*
United Kingdom	6	*17%*	*67%*	*0%*	*17%*

Table 29 shows the results of a 'mode' follow-up question that was asked to the 1,944 MM respondents who participated in the screener interview but did not provide an email address. This

question was added to find out whether respondents who refused to participate in ECS, would have been willing to participate in another survey, similar to ECS, but conducted in a different mode (paper or telephone). The majority of the 1,944 respondents (72%) replied that they would not participate in such a study, independent of the mode offered.

In Poland, of the 209 MM who started the screener interview but refused (or were unable) to give their email address, 38% replied that they would consider participating if the survey was conducted by telephone. It appears that in Poland, a larger share of refusals might have been linked to the online mode selected for ECS 2019. Additional evidence of this observations was collected during de-briefing moments, when interviewers noted that a considerable number of MM also did not want to start the screener interview, after having been explained that the survey would need to be completed online.

Table 29: Frequency distribution of responses to the mode follow-up question[(1)](MM), by country

	Completed, but no MM recruited (Base)	**An in-person interview**	**An interview over the telephone**	**A paper questionnaire sent by mail**	**A survey on the internet**	**None of these, I would not participate**
All countries	**1,944**	***2%***	***15%***	***3%***	***9%***	***72%***
Austria	1	*0%*	*0%*	*0%*	*100%*	*0%*
Belgium	5	*0%*	*0%*	*20%*	*40%*	*40%*
Bulgaria	196	*3%*	*16%*	*3%*	*8%*	*70%*
Croatia	13	*0%*	*8%*	*0%*	*8%*	*85%*
Cyprus	5	*60%*	*20%*	*0%*	*0%*	*20%*
Czechia	133	*8%*	*23%*	*2%*	*11%*	*56%*
Denmark	2	*0%*	*0%*	*0%*	*50%*	*50%*
Estonia	52	*2%*	*12%*	*2%*	*27%*	*58%*
Finland	1	*0%*	*0%*	*0%*	*0%*	*100%*
France	34	*0%*	*6%*	*6%*	*0%*	*88%*
Germany	421	*0%*	*0%*	*0%*	*0%*	*100%*
Greece	2	*0%*	*0%*	*0%*	*0%*	*100%*
Hungary	94	*0%*	*31%*	*4%*	*4%*	*61%*
Ireland	16	*6%*	*6%*	*13%*	*25%*	*50%*
Italy	49	*2%*	*12%*	*2%*	*0%*	*84%*
Latvia	84	*1%*	*15%*	*1%*	*1%*	*81%*
Lithuania	14	*0%*	*0%*	*0%*	*0%*	*100%*
Luxembourg	57	*0%*	*2%*	*0%*	*2%*	*96%*
Malta	1	*0%*	*0%*	*0%*	*0%*	*100%*
Netherlands	84	*1%*	*2%*	*1%*	*15%*	*80%*
Poland	209	*1%*	*38%*	*4%*	*9%*	*48%*
Portugal	11	*0%*	*0%*	*18%*	*9%*	*73%*
Romania	145	*5%*	*23%*	*4%*	*13%*	*54%*
Slovakia	16	*0%*	*6%*	*0%*	*6%*	*88%*
Slovenia	17	*0%*	*0%*	*0%*	*0%*	*100%*
Spain	68	*3%*	*29%*	*6%*	*37%*	*25%*

	Completed, but no MM recruited (Base)	**An in-person interview**	**An interview over the telephone**	**A paper questionnaire sent by mail**	**A survey on the internet**	**None of these, I would not participate**
Sweden	208	*4%*	*11%*	*4%*	*18%*	*63%*
United Kingdom	6	*0%*	*0%*	*50%*	*17%*	*33%*

Note: (1) Question wording of mode follow-up question: If you received a request to do another survey like the ECS, which of the following types would you be most likely to agree to participate in?

11.4 Overview of the establishment screening step

The sampling in 17 of the countries of ECS 2019 was based on a company-level sampling frame. In these countries, it was necessary to have an additional sampling stage within the screener interview to select establishments, so that the survey correctly reflected the survey population. The outcomes of this selection step in these 17 countries are discussed in this section.

Table 30: Overview of the establishment screening step, by country

	Total number of multi-site companies	**Nothing eligible** (incl. 'no answer' on nestabs)		**All establishments selected** (census)		**Random selection of establishments** (listing or random letter)	
All countries	***7,617***	**3,532**	***(46%)***	**2,857**	***(38%)***	**1,228**	***(16%)***
Belgium	*719*	252	*(35%)*	281	*(39%)*	186	*(26%)*
Bulgaria	*648*	297	*(46%)*	259	*(40%)*	92	*(14%)*
Croatia	*239*	111	*(46%)*	66	*(28%)*	62	*(26%)*
Cyprus	*129*	66	*(51%)*	38	*(29%)*	25	*(19%)*
Czechia	*412*	165	*(40%)*	158	*(38%)*	89	*(22%)*
Estonia	*84*	45	*(54%)*	28	*(33%)*	11	*(13%)*
Greece	*814*	467	*(57%)*	269	*(33%)*	78	*(10%)*
Hungary	*893*	424	*(47%)*	398	*(45%)*	71	*(8%)*
Latvia	*187*	122	*(65%)*	50	*(27%)*	15	*(8%)*
Lithuania	*136*	78	*(57%)*	37	*(27%)*	21	*(15%)*
Malta	*79*	28	*(35%)*	31	*(39%)*	20	*(25%)*
Poland	*411*	162	*(39%)*	158	*(38%)*	91	*(22%)*
Portugal	*629*	298	*(47%)*	237	*(38%)*	94	*(15%)*
Romania	*598*	259	*(43%)*	259	*(43%)*	80	*(13%)*
Slovakia	*192*	111	*(58%)*	67	*(35%)*	14	*(7%)*
Slovenia	*222*	135	*(61%)*	59	*(27%)*	28	*(13%)*
Spain	*1,225*	512	*(42%)*	462	*(38%)*	251	*(20%)*

Across the 17 countries, screeners were completed with 7,617 establishments that were part of a multi-site company. Almost half (46%) of MM respondents in these establishments replied that there were no (other) eligible establishments in the company, while 38% reported that there were not more than three establishments with 10+ employees in the company and 16% answered that there were more than three such establishments.

Respondents in 4,085 establishments were asked to provide contact details of one or more 'additional' establishments. Table 31 gives the number of establishments for which contact details

were collected, by selection method. The contact details of 1,325 'additional' establishments were collected; this is a smaller number than would have expected based on the pilot findings. The response rate for providing contact details of at least one 'additional' establishment in the screening step was 25%, compared with 49% in the pilot. This response rate varied between 10% in Cyprus and 59% in Malta.

Table 31: Number of establishments for which contact details were collected, by selection method and country

	Total number of establish-ments	**Response rate** (contact details of 1st establish-ment)	**All establishments selected** (census)			**Random selection of establishments** (listing or random letter)		
			1st establish-ments	**2nd establish-ments**	**3rd establish-ments**	**1st establish-ments**	**2nd establish-ments**	**3rd establish-ments**
All countries	**1,325**	***25%***	**797**	**107**	**7**	**226**	**173**	**15**
Belgium	166	*27%*	83	9	0	42	30	2
Bulgaria	129	*29%*	83	8	1	20	17	0
Croatia	52	*28%*	22	8	0	14	8	0
Cyprus	13	*10%*	2	2	0	4	4	1
Czechia	112	*32%*	54	7	1	26	22	2
Estonia	14	*33%*	11	1	0	2	0	0
Greece	68	*17%*	56	3	0	4	4	1
Hungary	152	*27%*	116	17	1	9	8	1
Latvia	22	*34%*	22	0	0	0	0	0
Lithuania	14	*16%*	6	2	0	3	3	0
Malta	43	*59%*	21	4	0	9	8	1
Poland	58	*17%*	29	3	0	13	12	1
Portugal	164	*37%*	95	16	1	27	22	3
Romania	113	*27%*	75	12	1	15	9	1
Slovakia	51	*51%*	35	4	0	6	5	1
Slovenia	39	*31%*	18	2	1	9	8	1
Spain	115	*13%*	69	9	1	23	13	0

Out of all 'additional' establishments identified in the screener, meaning establishments in addition to the contacted establishment, the contact details were provided for 1,325, and 406 of these establishments were subsequently successfully contacted during the main stage fieldwork (31%). The table below also shows that 113 of the 'additional' establishments turned out to be ineligible when contacted, as they had fewer than 10 employees (or were active in an activity sector that was excluded from the universe, three establishments).

Table 32: Number of additional establishments contacted, by country

	Non-eligible establishments	**Completed screeners**	**Break-offs after eligibility questions**	**CATI yield** (completed screeners out of sample contacted)
All countries	**113**	**406**	**13**	***31%***
Belgium	5	36	3	*22%*
Bulgaria	20	59	1	*46%*

	Non-eligible establishments	**Completed screeners**	**Break-offs after eligibility questions**	**CATI yield** (completed screeners out of sample contacted)
Croatia	11	18	0	*35%*
Cyprus	1	2	0	*15%*
Czechia	3	11	1	*10%*
Estonia	0	2	0	*14%*
Greece	6	26	0	*38%*
Hungary	11	58	1	*38%*
Latvia	1	12	0	*55%*
Lithuania	0	6	0	*43%*
Malta	7	24	0	*56%*
Poland	2	12	1	*21%*
Portugal	21	55	1	*34%*
Romania	7	22	2	*19%*
Slovakia	6	12	0	*24%*
Slovenia	3	14	1	*36%*
Spain	9	37	2	*32%*

11.5 Collecting contact details of ER

In 66,410 eligible establishments, MM respondents were asked to answer a set of questions to assess which form(s) of employee representation was present (Block 4 in the screener questionnaire, see Table 25).

Among the small establishments (with between 10 and 49 employees), 23% of MM respondents confirmed that there was employee representation present in the establishment; this figure increased to 52% for medium-sised establishments (with between 50 and 249 employees) and 77% for large establishments (with 250 or more employees).

Table 33 shows that there is a large variation in the percentage of establishments with employee representation, as reported by MM respondents, across countries.

Table 33: Percentage of establishments with employee representations (screener interview data), by establishment size and country

	Base	**All establishments**	**Establishments with 10-49 employees**	**Establishments with 50-249 employees**	**Establishments with 250+ employees**
All countries	**66,410**	***35%***	***23%***	***52%***	***77%***
Austria	2,274	*32%*	*15%*	*50%*	*82%*
Belgium	3,005	*45%*	*32%*	*73%*	*98%*
Bulgaria	3,698	*31%*	*24%*	*46%*	*66%*
Croatia	1,632	*30%*	*13%*	*47%*	*79%*
Cyprus	455	*14%*	*11%*	*22%*	*25%*
Czechia	1,966	*16%*	*5%*	*25%*	*64%*
Denmark	2,660	*55%*	*45%*	*74%*	*83%*
Estonia	1,066	*17%*	*15%*	*24%*	*34%*

	Base	All establishments	Establishments with 10-49 employees	Establishments with 50-249 employees	Establishments with 250+ employees
Finland	2,357	*63%*	*49%*	*85%*	*96%*
France	2,761	*67%*	*49%*	*89%*	*96%*
Germany	4,522	*26%*	*10%*	*38%*	*76%*
Greece	2,756	*4%*	*1%*	*11%*	*24%*
Hungary	2,728	*14%*	*8%*	*30%*	*59%*
Ireland	1,192	*27%*	*22%*	*35%*	*59%*
Italy	3,585	*31%*	*17%*	*60%*	*78%*
Latvia	1,796	*5%*	*3%*	*9%*	*31%*
Lithuania	1,614	*52%*	*30%*	*76%*	*88%*
Luxembourg	1,068	*57%*	*42%*	*89%*	*94%*
Malta	345	*10%*	*5%*	*11%*	*29%*
Netherlands	2,704	*45%*	*17%*	*68%*	*89%*
Poland	2,661	*31%*	*13%*	*47%*	*65%*
Portugal	2,639	*8%*	*3%*	*16%*	*46%*
Romania	3,123	*63%*	*52%*	*83%*	*92%*
Slovakia	1,549	*24%*	*19%*	*37%*	*60%*
Slovenia	1,713	*12%*	*5%*	*27%*	*73%*
Spain	4,201	*51%*	*40%*	*66%*	*85%*
Sweden	2,790	*56%*	*47%*	*71%*	*88%*
United Kingdom	3,550	*31%*	*18%*	*36%*	*64%*

During the MM online interview, MM respondents were asked to confirm their response provided during the screener interview about the presence of employee representation in the establishment. The following table focusses on switches in the MM respondents' responses about the presence of employee representation. It should, however, be noted that the analysis only looks at changes in presence of employee representations, and not at changes in the type of employee representation present.

Of the 22,030 MM respondents who complete the online survey, 96% confirmed their response from the screener interview about the presence (or absence) of employee representation in the establishment. The table below also shows that 2% (434) of MM respondents reported in the screener interview that an ER was present in the establishment, but changed their response in the online interview to 'no ER present', and another 2% (541) reported in the screener that there was no ER in the establishment, but changed their response to 'ER present' in the online interview.

A number of measures were implemented in the main stage fieldwork to increase the likelihood to collect contact details of employee representatives. One of these measures was the introduction of a second attempt to collect contact details of ERs, during the online MM interview. As such, the 541 MM respondents who had originally answered that there was no ER in their establishment, but who changed their response in the online MM interview, were asked at the end of the online interview to provide the contact details of the ER. It will be seen in Table 36 that 115 of these MM respondents provided the name of the ER at the end of the online interview.

Table 34: Updates on ER presence reported during MM online interview, by country

	Base	No change in ER presence		ER presence not confirmed in MM interview	ER presence reported in MM online interview
All countries	**22,030**	**21,055**	***(96%)***	**434**	**541**
Austria	1,011	969	*(96%)*	21	21
Belgium	1,016	958	*(94%)*	48	10
Bulgaria	1,034	976	*(94%)*	20	38
Croatia	564	538	*(95%)*	10	16
Cyprus	124	124	*(100%)*	0	0
Czechia	916	908	*(99%)*	7	1
Denmark	1,022	952	*(93%)*	29	41
Estonia	501	481	*(96%)*	8	12
Finland	1,034	961	*(93%)*	21	52
France	1,370	1,337	*(98%)*	9	24
Germany	715	672	*(94%)*	13	30
Greece	506	492	*(97%)*	0	14
Hungary	1,099	1,066	*(97%)*	19	14
Ireland	301	281	*(93%)*	12	8
Italy	1,510	1,428	*(95%)*	39	43
Latvia	518	508	*(98%)*	1	9
Lithuania	516	468	*(91%)*	13	35
Luxembourg	239	209	*(87%)*	8	22
Malta	146	146	*(100%)*	0	0
Netherlands	1,034	987	*(95%)*	22	25
Poland	852	829	*(97%)*	17	6
Portugal	981	961	*(98%)*	10	10
Romania	825	792	*(96%)*	14	19
Slovakia	367	335	*(91%)*	10	22
Slovenia	560	529	*(94%)*	5	26
Spain	1,485	1,427	*(96%)*	28	30
Sweden	1,083	1,054	*(97%)*	29	0
United Kingdom	701	667	*(95%)*	21	13

During the screener interview, a majority of MM respondents provided information about the presence (or absence) of an employee representative body in their establishment; however, when being asked to provide the contact details of the ER (if present), 68% of MM respondents refused and just 24% provided the name, telephone number and email address of the ER. The proportion of MM respondents refusing to give contact details of the ER varied between 40% in Finland and 92% in Cyprus.

It can also be seen from Table 35 that 7% of MM respondents provided the name of the ER in their establishment but did not provide an email address; for these ER, interviewers attempted to collect

the email address by contacting the ER directly. More details on the different ways that the email addresses of the ER were collected are reported in Table 37.

Table 35: Frequency distribution of MM response when asked to provide contact details of ER (screener interview data), by country

	Establishments with ER presence (Base)	**MM provides name, telephone and email of ER**	**MM provides name (and telephone), but no email of ER**	**MM refuses to give details of ER**
All countries	**23,411**	***24%***	***7%***	***68%***
Austria	728	*36%*	*7%*	*57%*
Belgium	1,364	*30%*	*1%*	*69%*
Bulgaria	1,162	*11%*	*11%*	*78%*
Croatia	485	*25%*	*6%*	*69%*
Cyprus	62	*6%*	*2%*	*92%*
Czechia	311	*30%*	*4%*	*66%*
Denmark	1,459	*19%*	*3%*	*78%*
Estonia	185	*21%*	*4%*	*76%*
Finland	1,488	*54%*	*7%*	*40%*
France	1,850	*34%*	*10%*	*56%*
Germany	1,194	*16%*	*4%*	*70%*
Greece	109	*20%*	*7%*	*72%*
Hungary	391	*18%*	*2%*	*81%*
Ireland	326	*14%*	*7%*	*79%*
Italy	1,100	*20%*	*16%*	*64%*
Latvia	95	*34%*	*6%*	*60%*
Lithuania	841	*40%*	*1%*	*59%*
Luxembourg	613	*14%*	*3%*	*83%*
Malta	36	*25%*	*0%*	*75%*
Netherlands	1,224	*53%*	*4%*	*43%*
Poland	812	*14%*	*4%*	*83%*
Portugal	210	*7%*	*14%*	*79%*
Romania	1,962	*11%*	*5%*	*84%*
Slovakia	372	*19%*	*6%*	*75%*
Slovenia	209	*22%*	*2%*	*76%*
Spain	2,157	*13%*	*5%*	*82%*
Sweden	1,562	*20%*	*29%*	*52%*
United Kingdom	1,104	*12%*	*3%*	*86%*

At the end of the fieldwork period, 8,068 ER had been identified – this is the total number of ER for which at least their name was collected; 90% had been identified during the CATI screener interview and 10% via the MM online interview. There were 688 MM respondents who had refused to identify the ER during the screener interview, but who agreed to provide the ER's name when asked again during the online interview, and 115 MM respondents had originally replied that there was no ER in

the establishment, but changed this response to 'ER present' and also identified the ER during the online interview.

Table 36: Total number of ER identified, by source and by country

	Total number of ER identified	**ER identified during CATI screener**		**ER identified via MM online interview** (screener refusal)		**ER identified via MM online interview** (response updated to ER present in online MM)	
All countries	**8,068**	**7,265**	***(90%)***	**688**	***(9%)***	**115**	***(1%)***
Austria	347	312	*(90%)*	30	*(9%)*	5	*(1%)*
Belgium	468	422	*(90%)*	43	*(9%)*	3	*(1%)*
Bulgaria	310	256	*(83%)*	44	*(14%)*	10	*(3%)*
Croatia	177	151	*(85%)*	24	*(14%)*	2	*(1%)*
Cyprus	10	5	*(50%)*	3	*(30%)*	2	*(20%)*
Czechia	124	107	*(86%)*	17	*(14%)*	0	*(0%)*
Denmark	409	326	*(80%)*	77	*(19%)*	6	*(1%)*
Estonia	55	45	*(82%)*	9	*(16%)*	1	*(2%)*
Finland	936	896	*(96%)*	28	*(3%)*	12	*(1%)*
France	866	809	*(93%)*	49	*(6%)*	8	*(1%)*
Germany	247	229	*(93%)*	17	*(7%)*	1	*(0%)*
Greece	33	30	*(91%)*	2	*(6%)*	1	*(3%)*
Hungary	86	76	*(88%)*	7	*(8%)*	3	*(3%)*
Ireland	69	68	*(99%)*	1	*(1%)*	0	*(0%)*
Italy	431	397	*(92%)*	25	*(6%)*	9	*(2%)*
Latvia	42	38	*(90%)*	2	*(5%)*	2	*(5%)*
Lithuania	365	341	*(93%)*	17	*(5%)*	7	*(2%)*
Luxembourg	130	104	*(80%)*	22	*(17%)*	4	*(3%)*
Malta	16	9	*(56%)*	4	*(25%)*	3	*(19%)*
Netherlands	728	697	*(96%)*	27	*(4%)*	4	*(1%)*
Poland	149	141	*(95%)*	7	*(5%)*	1	*(1%)*
Portugal	50	45	*(90%)*	4	*(8%)*	1	*(2%)*
Romania	398	313	*(79%)*	82	*(21%)*	3	*(1%)*
Slovakia	111	94	*(85%)*	14	*(13%)*	3	*(3%)*
Slovenia	68	51	*(75%)*	11	*(16%)*	6	*(9%)*
Spain	466	390	*(84%)*	74	*(16%)*	2	*(0%)*
Sweden	801	753	*(94%)*	35	*(4%)*	13	*(2%)*
United Kingdom	176	160	*(91%)*	13	*(7%)*	3	*(2%)*

Although 8,068 ER had been identified by the end of the fieldwork period, for some of them, no email address was collected; more information on the number of emails collected for ER is provided in the table below (absolute number) and in Table 38 (distribution).

The email addresses of 5,590 ER were collected during the CATI screener, and an additional 385 ER email addresses were provided by MM respondents during the online interview. The remaining email addresses were collected directly from the ER during a telephone call: 889 email addresses of

ER identified in the CATI screener and 169 email addresses of ER identified via the MM online interview.

For 13% of ER identified, it was not possible to collect an email address; these ER were contacted by telephone but could not be reached or refused/were not able to provide their email address; more details are presented in Table 39.

Table 37: Total number of ER email addresses collected, by country

	Total number of ER identified	**Email for ER collected in CATI screener**	**Email for ER collected in MM online interview**	**Email for ER collected during CATI reminder with ER** (ER identified in CATI screener)	**Email for ER collected during CATI reminder with ER** (ER identified via MM online interview)	***No email for ER collected***
All countries	**8,068**	**5,590**	**385**	**889**	**169**	***1,035*** (13%)
Austria	347	260	23	28	6	*30* (9%)
Belgium	468	407	11	7	13	*30* (6%)
Bulgaria	310	132	15	85	16	*62* (20%)
Croatia	177	124	15	15	6	*17* (10%)
Cyprus	10	4	2	1	2	*1* (10%)
Czechia	124	94	7	5	2	*16* (13%)
Denmark	409	275	54	22	8	*50* (12%)
Estonia	55	38	6	1	0	*10* (18%)
Finland	936	797	26	54	5	*54* (6%)
France	866	632	22	122	22	*68* (8%)
Germany	247	187	12	15	1	*32* (13%)
Greece	33	22	2	3	1	*5* (15%)
Hungary	86	69	2	3	1	*11* (13%)
Ireland	69	46	1	9	0	*13* (19%)
Italy	431	217	12	104	12	*86* (20%)
Latvia	42	32	1	2	1	*6* (14%)
Lithuania	365	335	14	1	4	*11* (3%)
Luxembourg	130	86	15	9	8	*12* (9%)
Malta	16	9	2	0	2	*3* (19%)
Netherlands	728	644	20	41	8	*15* (2%)
Poland	149	112	3	12	2	*20* (13%)
Portugal	50	15	2	15	1	*17* (34%)
Romania	398	219	34	39	15	*91* (23%)
Slovakia	111	70	2	6	4	*29* (26%)
Slovenia	68	46	12	2	2	*6* (9%)
Spain	466	283	31	54	21	*77* (17%)
Sweden	801	305	32	214	1	*249* (31%)
United Kingdom	176	130	7	20	5	*14* (8%)

Table 38: Frequency distribution for the source of ER email addresses collected, by country

	Total number of ER email addresses collected	**Email for ER collected in CATI screener**	**Email for ER collected in MM online interview**	**Email for ER collected during CATI reminder with ER** (ER identified in CATI screener)	**Email for ER collected during CATI reminder with ER** (ER identified via MM online interview)
All countries	**7,033**	***79%***	***5%***	***13%***	***2%***
Austria	317	*82%*	*7%*	*9%*	*2%*
Belgium	438	*93%*	*3%*	*2%*	*3%*
Bulgaria	248	*53%*	*6%*	*34%*	*6%*
Croatia	160	*78%*	*9%*	*9%*	*4%*
Cyprus	9	*44%*	*22%*	*11%*	*22%*
Czechia	108	*87%*	*6%*	*5%*	*2%*
Denmark	359	*77%*	*15%*	*6%*	*2%*
Estonia	45	*84%*	*13%*	*2%*	*0%*
Finland	882	*90%*	*3%*	*6%*	*1%*
France	798	*79%*	*3%*	*15%*	*3%*
Germany	215	*87%*	*6%*	*7%*	*0%*
Greece	28	*79%*	*7%*	*11%*	*4%*
Hungary	75	*92%*	*3%*	*4%*	*1%*
Ireland	56	*82%*	*2%*	*16%*	*0%*
Italy	345	*63%*	*3%*	*30%*	*3%*
Latvia	36	*89%*	*3%*	*6%*	*3%*
Lithuania	354	*95%*	*4%*	*0%*	*1%*
Luxembourg	118	*73%*	*13%*	*8%*	*7%*
Malta	13	*69%*	*15%*	*0%*	*15%*
Netherlands	713	*90%*	*3%*	*6%*	*1%*
Poland	129	*87%*	*2%*	*9%*	*2%*
Portugal	33	*45%*	*6%*	*45%*	*3%*
Romania	307	*71%*	*11%*	*13%*	*5%*
Slovakia	82	*85%*	*2%*	*7%*	*5%*
Slovenia	62	*74%*	*19%*	*3%*	*3%*
Spain	389	*73%*	*8%*	*14%*	*5%*
Sweden	552	*55%*	*6%*	*39%*	*0%*
United Kingdom	162	*80%*	*4%*	*12%*	*3%*

For 2,093 ER identified, no email address was provided by the MM respondent, and interviewers tried to contact these ER by telephone to collect their email address: 51% of these ER were reached and provided their email address, compared to 12% who were reached but refused to give an email address and 6% who said they had no email address (or would not be able to participate in an online survey). The remaining ER (31%) could not be reached.

Table 39: Outcome of attempts to collect missing ER emails, by source and country

	Base (no email for ER collected from MM – screener or online)	**Email for ER collected during CATI reminder with ER**		**Non-successful CATI contact with ER** (ER not reached, refusal to speak to ER etc.)		**ER refuses to participate** (or refuses to give email address)		**ER has no email address** (or is not able to participate in an online survey)	
All countries	**2,093**	**1,058**	***(51%)***	**656**	***(31%)***	**258**	***(12%)***	**121**	***(6%)***
Austria	64	34	*(53%)*	10	*(16%)*	17	*(27%)*	3	*(5%)*
Belgium	50	20	*(40%)*	10	*(20%)*	9	*(18%)*	11	*(22%)*
Bulgaria	163	101	*(62%)*	12	*(7%)*	30	*(18%)*	20	*(12%)*
Croatia	38	21	*(55%)*	8	*(21%)*	7	*(18%)*	2	*(5%)*
Cyprus	4	3	*(75%)*	0	*(0%)*	1	*(25%)*	0	*(0%)*
Czechia	23	7	*(30%)*	10	*(43%)*	5	*(22%)*	1	*(4%)*
Denmark	80	30	*(38%)*	36	*(45%)*	11	*(14%)*	3	*(4%)*
Estonia	11	1	*(9%)*	9	*(82%)*	1	*(9%)*	0	*(0%)*
Finland	113	59	*(52%)*	49	*(43%)*	4	*(4%)*	1	*(1%)*
France	212	144	*(68%)*	39	*(18%)*	19	*(9%)*	10	*(5%)*
Germany	48	16	*(33%)*	8	*(17%)*	17	*(35%)*	7	*(15%)*
Greece	9	4	*(44%)*	4	*(44%)*	1	*(11%)*	0	*(0%)*
Hungary	15	4	*(27%)*	8	*(53%)*	2	*(13%)*	1	*(7%)*
Ireland	22	9	*(41%)*	12	*(55%)*	1	*(5%)*	0	*(0%)*
Italy	202	116	*(57%)*	53	*(26%)*	22	*(11%)*	11	*(5%)*
Latvia	9	3	*(33%)*	5	*(56%)*	1	*(11%)*	0	*(0%)*
Lithuania	16	5	*(31%)*	8	*(50%)*	2	*(13%)*	1	*(6%)*
Luxembourg	29	17	*(59%)*	6	*(21%)*	3	*(10%)*	3	*(10%)*
Malta	5	2	*(40%)*	1	*(20%)*	1	*(20%)*	1	*(20%)*
Netherlands	64	49	*(77%)*	11	*(17%)*	3	*(5%)*	1	*(2%)*
Poland	34	14	*(41%)*	14	*(41%)*	2	*(6%)*	4	*(12%)*
Portugal	33	16	*(48%)*	11	*(33%)*	4	*(12%)*	2	*(6%)*
Romania	145	54	*(37%)*	53	*(37%)*	22	*(15%)*	16	*(11%)*
Slovakia	39	10	*(26%)*	28	*(72%)*	1	*(3%)*	0	*(0%)*
Slovenia	10	4	*(40%)*	2	*(20%)*	4	*(40%)*	0	*(0%)*
Spain	152	75	*(49%)*	35	*(23%)*	31	*(20%)*	11	*(7%)*
Sweden	464	215	*(46%)*	204	*(44%)*	36	*(8%)*	9	*(2%)*
United Kingdom	39	25	*(64%)*	10	*(26%)*	1	*(3%)*	3	*(8%)*

In Table 40, the focus switches to the number of ER online interviews achieved and conclusions are drawn about the effectiveness of the additional measures implemented in the main stage to increase the number of ERs for whom contact details were collected.

If no additional measures would have been implemented, it can be assumed that 2,730 online interviews with ER would have been achieved. This is the number of online interviews for ER who were identified during the screener interview; for those ER where no email address was collected

during the screener interview, an attempt was made to collect the email address via a telephone call to the ER.

The remaining 365 ER online interviews were collected as a consequence of the additional measures implemented: (1) 245 ER online interviews were with ER that were identified during the MM online interview, and (2) 120 ER online interviews were only achieved after a second CATI reminder had been conducted. In other words, it can be concluded that the additional measures implemented led to an increase of more than 10% in the number of ER online interviews.

Table 40: Source of completed ER online interviews, by country

	Base (ER online completes)	**Completes (pilot approach)**		**Completes via MM**		**Completes via 2nd CATI reminder**	
All countries	**3,095**	**2,730**	***(88%)***	**245**	***(8%)***	**120**	***(4%)***
Austria	166	125	*(75%)*	15	*(9%)*	26	*(16%)*
Belgium	100	92	*(92%)*	6	*(6%)*	2	*(2%)*
Bulgaria	101	84	*(83%)*	12	*(12%)*	5	*(5%)*
Croatia	72	59	*(82%)*	10	*(14%)*	3	*(4%)*
Cyprus	3	0	*(0%)*	2	*(67%)*	1	*(33%)*
Czechia	46	40	*(87%)*	4	*(9%)*	2	*(4%)*
Denmark	134	101	*(75%)*	30	*(22%)*	3	*(2%)*
Estonia	17	15	*(88%)*	0	*(0%)*	2	*(12%)*
Finland	470	449	*(96%)*	18	*(4%)*	3	*(1%)*
France	429	400	*(93%)*	23	*(5%)*	6	*(1%)*
Germany	67	59	*(88%)*	4	*(6%)*	4	*(6%)*
Greece	9	7	*(78%)*	0	*(0%)*	2	*(22%)*
Hungary	34	29	*(85%)*	2	*(6%)*	3	*(9%)*
Ireland	6	6	*(100%)*	0	*(0%)*	0	*(0%)*
Italy	188	157	*(84%)*	14	*(7%)*	17	*(9%)*
Latvia	12	11	*(92%)*	1	*(8%)*	0	*(0%)*
Lithuania	133	125	*(94%)*	8	*(6%)*	-	
Luxembourg	39	23	*(59%)*	10	*(26%)*	6	*(15%)*
Malta	5	4	*(80%)*	1	*(20%)*	0	*(0%)*
Netherlands	341	327	*(96%)*	14	*(4%)*	-	
Poland	48	38	*(79%)*	5	*(10%)*	5	*(10%)*
Portugal	17	15	*(88%)*	0	*(0%)*	2	*(12%)*
Romania	77	61	*(79%)*	15	*(19%)*	1	*(1%)*
Slovakia	27	25	*(93%)*	0	*(0%)*	2	*(7%)*
Slovenia	23	18	*(78%)*	5	*(22%)*	0	*(0%)*
Spain	196	162	*(83%)*	26	*(13%)*	8	*(4%)*
Sweden	309	277	*(90%)*	16	*(5%)*	16	*(5%)*
United Kingdom	26	21	*(81%)*	4	*(15%)*	1	*(4%)*

12. Reminder process (email and CATI reminders)

12.1 Email invitations sent out at the end of the screener step

In total, 64,466 email invitations were sent to MM respondents and 7,033 to employee representatives. In 6,976 establishments, both an MM respondent and an ER respondent were invited to complete the online survey.

Table 41: Total number of MM and ER invitations sent out, by country

	Only MM invitation sent		**MM and ER invitation sent**				**Only ER invitation sent** (via CATI screener or CATI with ER)	
			ER email via CATI screener		ER email via online MM or CATI with ER			
All countries	57,490	*(89%)*	5,545	*(9%)*	1,431	*(2%)*	57	*(0%)*
Austria	1,956	*(86%)*	260	*(11%)*	57	*(3%)*	0	*(0%)*
Belgium	2,562	*(85%)*	407	*(14%)*	31	*(1%)*	0	*(0%)*
Bulgaria	3,257	*(93%)*	129	*(4%)*	116	*(3%)*	3	*(0%)*
Croatia	1,461	*(90%)*	122	*(8%)*	36	*(2%)*	2	*(0%)*
Cyprus	441	*(98%)*	4	*(1%)*	5	*(1%)*	0	*(0%)*
Czechia	1,726	*(94%)*	93	*(5%)*	14	*(1%)*	1	*(0%)*
Denmark	2,299	*(86%)*	275	*(10%)*	84	*(3%)*	0	*(0%)*
Estonia	971	*(96%)*	36	*(4%)*	7	*(1%)*	2	*(0%)*
Finland	1,474	*(63%)*	797	*(34%)*	85	*(4%)*	0	*(0%)*
France	1,929	*(71%)*	632	*(23%)*	166	*(6%)*	0	*(0%)*
Germany	3,896	*(95%)*	177	*(4%)*	28	*(1%)*	10	*(0%)*
Greece	2,726	*(99%)*	22	*(1%)*	6	*(0%)*	0	*(0%)*
Hungary	2,560	*(97%)*	68	*(3%)*	6	*(0%)*	1	*(0%)*
Ireland	1,121	*(95%)*	45	*(4%)*	10	*(1%)*	1	*(0%)*
Italy	3,191	*(90%)*	217	*(6%)*	128	*(4%)*	0	*(0%)*
Latvia	1,676	*(98%)*	32	*(2%)*	4	*(0%)*	0	*(0%)*
Lithuania	1,246	*(78%)*	335	*(21%)*	19	*(1%)*	0	*(0%)*
Luxembourg	894	*(88%)*	85	*(8%)*	32	*(3%)*	1	*(0%)*
Malta	331	*(96%)*	9	*(3%)*	4	*(1%)*	0	*(0%)*
Netherlands	1,914	*(73%)*	639	*(24%)*	67	*(3%)*	7	*(0%)*
Poland	2,324	*(95%)*	111	*(5%)*	17	*(1%)*	1	*(0%)*
Portugal	2,595	*(99%)*	15	*(1%)*	18	*(1%)*	0	*(0%)*
Romania	2,673	*(90%)*	217	*(7%)*	88	*(3%)*	2	*(0%)*
Slovakia	1,452	*(95%)*	70	*(5%)*	11	*(1%)*	1	*(0%)*
Slovenia	1,634	*(96%)*	46	*(3%)*	16	*(1%)*	0	*(0%)*
Spain	3,750	*(91%)*	278	*(7%)*	105	*(3%)*	6	*(0%)*
Sweden	2,049	*(79%)*	294	*(11%)*	239	*(9%)*	19	*(1%)*
United Kingdom	3,382	*(95%)*	130	*(4%)*	32	*(1%)*	0	*(0%)*

12.2 Number of emails sent and CATI reminders conducted

In total, 64,466 invitations to complete the online survey were sent to MM respondents. A first email reminder was sent to 85% of MM who had been sent an invitation, meaning that, in total, 55,158 first email reminders have been sent. The second email reminder was sent to 50,439 MM (or 78% of MM who had been sent an email invitation) and the third email reminder to 42,886 MM (66% of MM who had been sent an email invitation).

Table 42: Total number of email reminders sent and CATI reminders completed (MM), by country

	Invitations sent	**1st email reminder**	**2nd email reminder**	**3rd email reminder**	**4th email reminder**	**CATI reminders** (spoken to MM) (1)
All countries	**64,466**	**55,158**	**50,439**	**42,886**	**38,769**	**41,275**
Austria	2,273	1,794	1,589	1,184	1,017	1,366
Belgium	3,000	2,560	2,319	2,045	1,849	1,820
Bulgaria	3,502	3,111	2,901	2,393	2,202	2,710
Croatia	1,619	1,402	1,269	1,065	964	1,012
Cyprus	450	404	383	341	327	291
Czechia	1,833	1,389	1,161	972	828	809
Denmark	2,658	2,137	1,937	1,601	1,446	1,441
Estonia	1,014	766	673	588	510	480
Finland	2,356	1,950	1,756	1,428	1,265	1,472
France	2,727	2,150	1,940	1,588	1,409	1,700
Germany	4,101	3,751	3,375	2,981	2,766	3,144
Greece	2,754	2,607	2,527	2,248	2,090	2,123
Hungary	2,634	2,149	1,922	1,569	1,354	1,465
Ireland	1,176	1,058	1,011	898	827	633
Italy	3,536	2,972	2,727	2,223	1,958	2,316
Latvia	1,712	1,502	1,401	1,215	1,115	892
Lithuania	1,600	1,373	1,264	1,108	1,020	949
Luxembourg	1,011	899	855	748	690	721
Malta	344	293	263	214	189	213
Netherlands	2,620	2,194	1,958	1,610	1,401	1,730
Poland	2,452	2,153	1,973	1,744	1,515	1,478
Portugal	2,628	2,326	2,167	1,874	1,692	1,858
Romania	2,978	2,687	2,537	2,053	1,907	2,083
Slovakia	1,533	1,379	1,299	1,177	1,089	485
Slovenia	1,696	1,370	1,141	1,021	954	1,073
Spain	4,133	3,535	3,245	2,754	2,483	2,801
Sweden	2,582	2,015	1,751	1,390	1,209	1,293
United Kingdom	3,544	3,232	3,095	2,854	2,693	2,917

Note: (1) Not all MM respondents could be reached for a CATI reminder. More details about the total number of CATI reminders attempted is provided in Table 45.

The drop in the proportion of MM being sent the third versus the second email reminder was larger than the drop in the proportion from the first to the second email reminder, this due to the fact that the CATI reminder was scheduled between the second and the third email reminder. In total, 41,275 MM respondents were reached for a CATI reminder (64% of MM who had been sent an email invitation). The fourth and final email reminder was sent to 38,769 MM (60% of MM who had been sent an email invitation).

Table 43: Total number of email reminders sent and CATI reminders completed (ER), by country

	Invitations sent	**1st email reminder**	**2nd email reminder**	**3rd email reminder**	**4th email reminder**	**CATI reminders** (spoken to ER)
All countries	**7,033**	**5,354**	**4,469**	**4,026**	**3,725**	**5,795**
Austria	317	226	193	164	147	277
Belgium	438	365	331	312	290	336
Bulgaria	248	182	160	144	141	282
Croatia	160	123	110	95	88	129
Cyprus	9	6	6	6	6	6
Czechia	108	90	73	65	60	76
Denmark	359	264	211	191	177	259
Estonia	45	38	34	27	26	22
Finland	882	607	471	413	382	631
France	798	570	459	402	370	726
Germany	215	185	159	147	137	199
Greece	28	26	23	22	20	25
Hungary	75	56	45	41	39	48
Ireland	56	47	44	43	43	42
Italy	345	235	192	177	168	331
Latvia	36	31	26	23	22	19
Lithuania	354	287	247	226	212	209
Luxembourg	118	104	89	83	73	94
Malta	13	7	7	7	5	11
Netherlands	713	549	444	386	343	595
Poland	129	112	94	83	78	87
Portugal	33	26	22	21	20	34
Romania	307	252	222	213	209	287
Slovakia	82	70	63	58	56	42
Slovenia	62	50	46	41	38	44
Spain	389	268	218	203	183	351
Sweden	552	436	346	305	269	496
United Kingdom	162	142	134	128	123	137

Note: (1) Not all MM respondents could be reached for a CATI reminder. More details about the total number of CATI reminders attempted is provided in Table 46.

The total number of ER invitations sent out by the end of the fieldwork period was 7,033. More than 80% (5,795) of ER were reached during a CATI reminder; for some of these ER, this telephone contact was used to collect their email address (for more details, see Section 11.5)

The first email reminder was sent to 5,354 ER (76% of ER who had been sent an invitation), the second email reminder was sent to 4,469 ER (64%) and the third email reminder to 4,026 ER (57%). The final email reminder was sent to 3,725 ER (53% of ER who had been sent an invitation).

Across most countries, towards the end of the fieldwork period, additional (second) CATI reminders were conducted in an attempt to increase the number of ER online interviews. These reminder calls focussed on ER who had indicated during the first CATI reminder that they would complete the online survey (but had not yet done so) and who had started to complete the online survey, but had not yet filled out all parts of the questionnaire. In Lithuania and the Netherlands, no additional CATI reminders were conducted as the number of ER online completes was in line with the number of ER interviews achieved in ECS 2013.

Table 44: Number of additional CATI reminder conducted (second CATI reminder), by country

	MM respondents	ER respondents
All countries	**1,814**	**1,343**
Austria	-	111
Belgium	-	155
Bulgaria	-	34
Croatia	-	58
Cyprus	191	3
Czechia	-	21
Denmark	-	80
Estonia	31	13
Finland	-	17
France	718	62
Germany	165	64
Greece	120	13
Hungary	-	19
Ireland	-	30
Italy	-	110
Latvia	-	9
Luxembourg	31	50
Malta	143	4
Poland	43	32
Portugal	-	13
Romania	155	35
Slovakia	-	19
Slovenia	-	23
Spain	124	120
Sweden	-	152
United Kingdom	93	96

In 11 countries, additional CATI reminders were also conducted in an attempt to increase the number of MM online completes; this was the case in Cyprus, Estonia, France, Germany, Greece, Luxembourg, Malta, Poland, Romania, Spain and the United Kingdom.

12.3 Outcome of the CATI reminders

In addition to sending out up to four email reminders, one of the reminders to both MM and ER respondents was conducted by telephone.

For 26% of MM, a CATI reminder did not need to be conducted, as a final outcome for that MM was obtained before the CATI reminder was scheduled (or attempted). The corresponding figure for ER was lower – at 11%. The difference in this proportion can be explained by the different rule for scheduling CATI reminders for MM and ER (after the second email reminder vs. after the email invitation, respectively).

Table 45 (MM) and Table 46 (ER) show that, for most CATI reminders conducted, interviewers managed to speak to the respondent. Moreover, the proportion of MM and ER who indicated during the CATI reminder that they were not willing to participate in the study (and that they did not want to receive further email reminders) remained low across most countries.

The last column of Table 45 (MM) and Table 46 (ER) reports the number of cases for which the outcome of the CATI reminder was unknown or for which the CATI reminder was not attempted. The proportion of cases with an 'unknown' status is high in Slovakia. This issue was reviewed with the local project leader in Slovakia, and evidence was submitted that CATI reminders had been attempted, but detailed outcomes had only been recorded for records when the MM or ER was reached. Slovakia had a high rate of unsuccessful CATI reminders, where the interviewer did not manage to speak to the MM or ER respondent.

Table 45: Outcome of CATI reminder (MM), by country

	Base	Final outcome before CATI reminder		Spoken to MM/ER (no refusal)		Spoken to MM/ER (refusal)		Not spoken to MM/ER		Unknown status/not attempted	
All countries	**64,466**	**17,012**	**(26%)**	**36,915**	**(57%)**	**4,360**	**(7%)**	**5,044**	**(8%)**	**1,135**	**(2%)**
Austria	2,273	810	(36%)	1,106	(49%)	260	(11%)	93	(4%)	4	(0%)
Belgium	3,000	927	(31%)	1,635	(55%)	185	(6%)	250	(8%)	3	(0%)
Bulgaria	3,502	727	(21%)	2,502	(71%)	208	(6%)	61	(2%)	4	(0%)
Croatia	1,619	432	(27%)	901	(56%)	111	(7%)	172	(11%)	3	(0%)
Cyprus	450	82	(18%)	274	(61%)	17	(4%)	76	(17%)	1	(0%)
Czechia	1,833	833	(45%)	640	(35%)	169	(9%)	137	(7%)	54	(3%)
Denmark	2,658	878	(33%)	1,276	(48%)	165	(6%)	339	(13%)	0	(0%)
Estonia	1,014	393	(39%)	447	(44%)	33	(3%)	93	(9%)	48	(5%)
Finland	2,356	725	(31%)	1,317	(56%)	155	(7%)	156	(7%)	3	(0%)
France	2,727	955	(35%)	1,546	(57%)	154	(6%)	70	(3%)	2	(0%)
Germany	4,101	723	(18%)	2,707	(66%)	437	(11%)	224	(5%)	10	(0%)
Greece	2,754	327	(12%)	1,845	(67%)	278	(10%)	294	(11%)	10	(0%)
Hungary	2,634	816	(31%)	1,311	(50%)	154	(6%)	192	(7%)	161	(6%)
Ireland	1,176	236	(20%)	582	(49%)	51	(4%)	307	(26%)	0	(0%)
Italy	3,536	999	(28%)	2,095	(59%)	221	(6%)	214	(6%)	7	(0%)
Latvia	1,712	406	(24%)	786	(46%)	106	(6%)	408	(24%)	6	(0%)
Lithuania	1,600	400	(25%)	884	(55%)	65	(4%)	245	(15%)	6	(0%)

	Base	Final outcome before CATI reminder		Spoken to MM/ER (no refusal)		Spoken to MM/ER (refusal)		Not spoken to MM/ER		Unknown status/not attempted	
Luxembourg	1,011	226	(22%)	612	(61%)	109	(11%)	57	(6%)	7	(1%)
Malta	344	97	(28%)	204	(59%)	9	(3%)	33	(10%)	1	(0%)
Netherlands	2,620	859	(33%)	1,543	(59%)	187	(7%)	27	(1%)	4	(0%)
Poland	2,452	605	(25%)	1,371	(56%)	107	(4%)	257	(10%)	112	(5%)
Portugal	2,628	622	(24%)	1,727	(66%)	131	(5%)	146	(6%)	2	(0%)
Romania	2,978	559	(19%)	1,845	(62%)	238	(8%)	308	(10%)	28	(1%)
Slovakia	1,533	330	(22%)	421	(27%)	64	(4%)	71	(5%)	647	(42%)
Slovenia	1,696	341	(20%)	875	(52%)	198	(12%)	281	(17%)	1	(0%)
Spain	4,133	1,118	(27%)	2,520	(61%)	281	(7%)	208	(5%)	6	(0%)
Sweden	2,582	1,018	(39%)	1,171	(45%)	122	(5%)	266	(10%)	5	(0%)
United Kingdom	3,544	567	(16%)	2,772	(78%)	145	(4%)	59	(2%)	1	(0%)

Table 46: Outcome of CATI reminder (ER), by country

	Base	Final outcome before CATI reminder		Spoken to MM/ER (no refusal)		Spoken to MM/ER (refusal)		Not spoken to MM/ER		Unknown status/not attempted	
All countries	**8,068**	**869**	***(11%)***	**5,047**	***(63%)***	**748**	***(9%)***	**1,293**	***(16%)***	**111**	***(1%)***
Austria	347	45	*(13%)*	229	*(66%)*	48	*(14%)*	21	*(6%)*	4	*(1%)*
Belgium	468	61	*(13%)*	273	*(58%)*	63	*(13%)*	70	*(15%)*	1	*(0%)*
Bulgaria	310	12	*(4%)*	225	*(73%)*	57	*(18%)*	16	*(5%)*	0	*(0%)*
Croatia	177	25	*(14%)*	112	*(63%)*	17	*(10%)*	22	*(12%)*	1	*(1%)*
Cyprus	10	1	*(10%)*	5	*(50%)*	1	*(10%)*	3	*(30%)*	0	*(0%)*
Czechia	124	16	*(13%)*	58	*(47%)*	18	*(15%)*	20	*(16%)*	12	*(10%)*
Denmark	409	45	*(11%)*	215	*(53%)*	44	*(11%)*	105	*(26%)*	0	*(0%)*
Estonia	55	12	*(22%)*	20	*(36%)*	2	*(4%)*	11	*(20%)*	10	*(18%)*
Finland	936	146	*(16%)*	581	*(62%)*	50	*(5%)*	159	*(17%)*	0	*(0%)*
France	866	90	*(10%)*	651	*(75%)*	75	*(9%)*	50	*(6%)*	0	*(0%)*
Germany	247	19	*(8%)*	148	*(60%)*	51	*(21%)*	27	*(11%)*	2	*(1%)*
Greece	33	1	*(3%)*	22	*(67%)*	3	*(9%)*	7	*(21%)*	0	*(0%)*
Hungary	86	11	*(13%)*	39	*(45%)*	9	*(10%)*	20	*(23%)*	7	*(8%)*
Ireland	69	3	*(4%)*	40	*(58%)*	2	*(3%)*	24	*(35%)*	0	*(0%)*
Italy	431	28	*(6%)*	286	*(66%)*	45	*(10%)*	72	*(17%)*	0	*(0%)*
Latvia	42	7	*(17%)*	18	*(43%)*	1	*(2%)*	14	*(33%)*	2	*(5%)*
Lithuania	365	42	*(12%)*	196	*(54%)*	13	*(4%)*	112	*(31%)*	2	*(1%)*
Luxembourg	130	22	*(17%)*	74	*(57%)*	20	*(15%)*	11	*(8%)*	3	*(2%)*
Malta	16	3	*(19%)*	9	*(56%)*	2	*(13%)*	2	*(13%)*	0	*(0%)*
Netherlands	728	104	*(14%)*	565	*(78%)*	30	*(4%)*	24	*(3%)*	5	*(1%)*
Poland	149	12	*(8%)*	77	*(52%)*	10	*(7%)*	43	*(29%)*	7	*(5%)*
Portugal	50	2	*(4%)*	27	*(54%)*	7	*(14%)*	14	*(28%)*	0	*(0%)*

	Base	Final outcome before CATI reminder		Spoken to MM/ER (no refusal)		Spoken to MM/ER (refusal)		Not spoken to MM/ER		Unknown status/not attempted	
Romania	398	25	*(6%)*	234	*(59%)*	53	*(13%)*	82	*(21%)*	4	*(1%)*
Slovakia	111	11	*(10%)*	39	*(35%)*	3	*(3%)*	9	*(8%)*	49	*(44%)*
Slovenia	68	10	*(15%)*	40	*(59%)*	4	*(6%)*	13	*(19%)*	1	*(1%)*
Spain	466	55	*(12%)*	287	*(62%)*	64	*(14%)*	60	*(13%)*	0	*(0%)*
Sweden	801	49	*(6%)*	447	*(56%)*	49	*(6%)*	255	*(32%)*	1	*(0%)*
United Kingdom	176	12	*(7%)*	130	*(74%)*	7	*(4%)*	27	*(15%)*	0	*(0%)*

12.4 Timing of the CATI reminders

12.4.1 Timing of the CATI reminders to MM respondents

During the mainstage, the CATI reminder for MM respondents was, in principle, always scheduled one working day after the second email reminder. CATI centres were instructed to conduct CATI reminders in a time span of five working days (with at least three contact attempts, on different days and times of the days). Three-quarters (74%) of CATI reminders was conducted after the second email reminder, but before the third email reminder.

In Germany, in attempt to increase the CAWI yield, the set-up for scheduling CATI reminders was changed during the last weeks of the fieldwork period. From week 13 onwards, CATI reminders for MM were scheduled after the first email reminder. In the end, 40% of CATI reminders in Germany were conducted after the first email reminder, but before the second email reminder.

A few countries had a larger share of CATI reminders that were only completed after the fourth email reminder. It should, however, be noted that the date that was used to calculate the timing of the CATI reminder was the date of the last contact attempt, meaning that unsuccessful contact attempts completed closer to the scheduled data of the CATI reminder are not taken into account.

In Slovenia, the fieldwork rules for scheduling CATI reminders were not followed, and most CATI reminders were conducted too early. During the fieldwork monitoring, the coordination team at Ipsos focussed mainly on taking corrective actions when CATI reminders were scheduled too late, while less attention was paid to countries that scheduled the CATI reminders too early. The fact that MM respondents in Slovenia were contacted again by an interviewer shortly after having received the email invitation did not negatively impact the yield rate for the online survey.

Table 47: Timing of CATI reminder (MM), by country

	Base	Before 1st email reminder	After 1st email reminder, before 2nd email reminder	After 2nd email reminder, before 3rd email reminder	After 3rd email reminder, before 4th email reminder	After 4th email reminder
All countries	**47,706**	**2%**	**3%**	**74%**	**10%**	**10%**
Austria	1,494	0%	0%	87%	8%	5%
Belgium	2,177	0%	0%	63%	14%	23%
Bulgaria	2,803	0%	0%	95%	3%	2%
Croatia	1,231	0%	0%	76%	9%	14%
Cyprus	375	0%	0%	99%	0%	0%
Czechia	969	0%	0%	53%	25%	21%
Denmark	1,835	0%	0%	88%	12%	0%

	Base	Before 1st email reminder	After 1st email reminder, before 2nd email reminder	After 2nd email reminder, before 3rd email reminder	After 3rd email reminder, before 4th email reminder	After 4th email reminder
Estonia	580	0%	0%	41%	45%	14%
Finland	1,681	0%	0%	82%	9%	9%
France	1,862	0%	0%	75%	11%	14%
Germany	3,464	0%	40%	42%	10%	9%
Greece	2,433	0%	0%	61%	17%	22%
Hungary	1,682	0%	0%	95%	4%	1%
Ireland	977	0%	0%	61%	16%	23%
Italy	2,636	3%	2%	87%	5%	3%
Latvia	1,317	0%	0%	62%	18%	20%
Lithuania	1,219	0%	0%	97%	3%	0%
Luxembourg	794	0%	0%	54%	14%	32%
Malta	249	0%	0%	98%	1%	1%
Netherlands	1,848	1%	0%	94%	3%	2%
Poland	1,756	0%	0%	63%	31%	6%
Portugal	2,090	1%	0%	90%	4%	5%
Romania	2,431	0%	0%	91%	8%	1%
Slovakia	560	0%	0%	53%	25%	23%
Slovenia	1,433	71%	13%	12%	1%	3%
Spain	3,127	0%	0%	92%	3%	4%
Sweden	1,640	0%	0%	80%	11%	9%
United Kingdom	3,043	0%	0%	59%	16%	25%

12.4.2 Timing of the CATI reminders to ER respondents

The table on the following page provides more information about the timing of the CATI reminder for ER respondents. The first column gives the proportion of all CATI reminders to ER that were in fact conducted to collect the ER's email address.[45] As noted above (see Table 39), for 2,093 ER identified during the screener or MM online interview, no email address was provided by the MM respondent, and 27% of CATI reminders to ER were conducted in an attempt to collect the email address of the ER.

The remaining CATI reminders to ER were, in principle, scheduled one working day after sending the email invitation and 59% of CATI reminders to ER respondents were indeed conducted before the first email reminder. Excluding the CATI reminders conducted to collect the ER's email address, this means that 81% of "other" CATI reminders to ER were conducted in line with the scheduled timing.

[45] Given that only one CATI contact was planned for ER, no additional CATI reminder was scheduled if the ER respondent was contacted by telephone to collect the email address. In an attempt to increase response among ER respondents, additional CATI reminders were conducted, aslo to some respondents in 12.4.2.

Table 48: Timing of CATI reminders (ER), by country

	Base	CATI contact with ER to collect email	Before 1st email reminder	After 1st email reminder, before 2nd email reminder	After 2nd email reminder, before 3rd email reminder	After 3rd email reminder, before 4th email reminder	After 4th email reminder
All countries	7,530	***27%***	***59%***	***6%***	***3%***	***2%***	***3%***
Austria	314	20%	71%	4%	3%	1%	1%
Belgium	440	11%	59%	9%	7%	4%	10%
Bulgaria	301	54%	42%	1%	1%	0%	2%
Croatia	167	22%	60%	6%	1%	2%	8%
Cyprus	9	44%	56%	0%	0%	0%	0%
Czechia	98	23%	43%	21%	2%	2%	8%
Denmark	392	20%	69%	10%	0%	1%	0%
Estonia	37	22%	32%	27%	16%	3%	0%
Finland	869	13%	75%	5%	4%	2%	0%
France	822	26%	55%	9%	3%	2%	5%
Germany	238	20%	46%	11%	7%	4%	12%
Greece	33	27%	42%	21%	0%	3%	6%
Hungary	71	17%	83%	0%	0%	0%	0%
Ireland	67	33%	45%	9%	3%	3%	7%
Italy	418	48%	48%	2%	0%	0%	1%
Latvia	35	26%	43%	11%	0%	0%	20%
Lithuania	342	5%	94%	2%	0%	0%	0%
Luxembourg	114	25%	34%	8%	5%	8%	19%
Malta	14	36%	64%	0%	0%	0%	0%
Netherlands	674	9%	87%	2%	1%	0%	0%
Poland	133	23%	41%	26%	5%	2%	3%
Portugal	50	66%	30%	0%	2%	2%	0%
Romania	385	37%	56%	6%	0%	0%	0%
Slovakia	52	31%	50%	8%	4%	0%	8%
Slovenia	61	16%	57%	13%	8%	2%	3%
Spain	435	35%	61%	3%	0%	0%	1%
Sweden	788	59%	34%	4%	2%	1%	1%
United Kingdom	171	23%	46%	11%	6%	7%	8%

13. When did MM and ER complete the online survey?

13.1.1 Number of email invitations sent to MM and ER respondents

Table 49 focusses on the 64,466 MM respondents who were sent an email invitation to complete the online survey for MM and looks at the number of email reminders sent to these respondents. 60% of potential MM respondents were sent all four email reminders, compared to 14% who were sent no

email reminders (only the invitation was sent). Once a respondent had completed the online survey, no further email reminders were sent; however, email reminders were of course also stopped when a respondent "unsubscribed" from the study and indicated that he/she did not want to receive any further emails, or when a refusal was received during the CATI reminder with the respondent.

Compared to the MM, and in line with the better CAWI yield for ER than for MM respondents, a higher proportion of potential ER respondents received only the invitation email (24%, compared to 14% for MM) and a lower proportion was sent all four email reminders (53% vs. 60% for MM).

Table 49: Distribution of the number email reminders sent to MM, by country

	Base	Only invitation sent	Invitation and 1 email reminder	Invitation and 2 email reminders	Invitation and 3 email reminders	Invitation and 4 email reminders
All countries	**64,466**	**14%**	**7%**	**12%**	**6%**	**60%**
Austria	2,273	21%	9%	18%	7%	45%
Belgium	3,000	15%	8%	9%	7%	62%
Bulgaria	3,502	11%	6%	15%	5%	63%
Croatia	1,619	13%	8%	13%	6%	60%
Cyprus	450	10%	5%	9%	3%	73%
Czechia	1,833	24%	12%	10%	8%	45%
Denmark	2,658	20%	8%	13%	6%	54%
Estonia	1,014	24%	9%	8%	8%	50%
Finland	2,356	17%	8%	14%	7%	54%
France	2,727	21%	8%	13%	7%	52%
Germany	4,101	9%	9%	10%	5%	67%
Greece	2,754	5%	3%	10%	6%	76%
Hungary	2,634	18%	9%	13%	8%	51%
Ireland	1,176	10%	4%	10%	6%	70%
Italy	3,536	16%	7%	14%	7%	55%
Latvia	1,712	12%	6%	11%	6%	65%
Lithuania	1,600	14%	7%	10%	6%	64%
Luxembourg	1,011	11%	4%	11%	6%	68%
Malta	344	15%	9%	14%	7%	55%
Netherlands	2,620	16%	9%	13%	8%	53%
Poland	2,452	12%	7%	9%	9%	62%
Portugal	2,628	11%	6%	11%	7%	64%
Romania	2,978	10%	5%	16%	5%	64%
Slovakia	1,533	10%	5%	8%	6%	71%
Slovenia	1,696	19%	14%	7%	4%	56%
Spain	4,133	14%	7%	12%	7%	60%
Sweden	2,582	22%	10%	14%	7%	47%
United Kingdom	3,544	9%	4%	7%	5%	76%

Table 50: Distribution of the number of email reminders sent to ER, by country

	Base	Only invitation sent	Invitation and 1 email reminder	Invitation and 2 email reminders	Invitation and 3 email reminders	Invitation and 4 email reminders
All countries	**7,033**	**24%**	**13%**	**6%**	**4%**	**53%**
Austria	317	29%	10%	9%	5%	46%
Belgium	438	17%	8%	4%	5%	66%
Bulgaria	248	27%	9%	6%	1%	57%
Croatia	160	23%	8%	9%	4%	55%
Cyprus	9	33%	0%	0%	0%	67%
Czechia	108	17%	16%	7%	5%	56%
Denmark	359	26%	15%	6%	4%	49%
Estonia	45	16%	9%	16%	2%	58%
Finland	882	31%	15%	7%	4%	43%
France	798	29%	14%	7%	4%	46%
Germany	215	14%	12%	6%	5%	64%
Greece	28	7%	11%	4%	7%	71%
Hungary	75	25%	15%	5%	3%	52%
Ireland	56	16%	5%	2%	0%	77%
Italy	345	32%	12%	4%	3%	49%
Latvia	36	14%	14%	8%	3%	61%
Lithuania	354	19%	11%	6%	4%	60%
Luxembourg	118	12%	13%	5%	8%	62%
Malta	13	46%	0%	0%	15%	38%
Netherlands	713	23%	15%	8%	6%	48%
Poland	129	13%	14%	9%	4%	60%
Portugal	33	21%	12%	3%	3%	61%
Romania	307	18%	10%	3%	1%	68%
Slovakia	82	15%	9%	6%	2%	68%
Slovenia	62	19%	6%	8%	5%	61%
Spain	389	31%	13%	4%	5%	47%
Sweden	552	21%	16%	7%	7%	49%
United Kingdom	162	12%	5%	4%	3%	76%

13.1.2 Timing of MM online completes

In Table 51, the focus switches to all MM who completed the online survey (incl. those dropped due to quality issues) and the timing of these online completes. Out of the 22,030 MM who completed the online survey, 39% did so before the first email reminder (sent four working days after the email invitation), another 18% completed the online survey after the first email reminder, but before the second email reminder (sent four working days after the first email reminder). One third of the online surveys was completed after the second or third email reminder, but before final (fourth) email reminder. About 1 in 10 (11%) MM respondents only completed the online survey after the final email reminder.

Table 51: Timing of online completes (MM), by country

Online MM completed:	Base	Before 1st email reminder	After 1st email reminder, before 2nd email reminder	After 2nd email reminder, before 3rd email reminder	After 3rd email reminder, before 4th email reminder	After 4th email reminder
All countries	**22,030**	**39%**	**18%**	**20%**	**13%**	**11%**
Austria	1,011	45%	19%	19%	10%	6%
Belgium	1,016	40%	21%	16%	11%	11%
Bulgaria	1,034	35%	17%	26%	15%	8%
Croatia	564	34%	21%	21%	14%	11%
Cyprus	124	36%	17%	17%	8%	22%
Czechia	916	46%	23%	13%	10%	8%
Denmark	1,022	49%	17%	15%	11%	8%
Estonia	501	49%	17%	13%	12%	9%
Finland	1,034	38%	18%	20%	12%	11%
France	1,370	41%	14%	19%	11%	16%
Germany	715	38%	25%	19%	11%	7%
Greece	506	26%	14%	23%	17%	20%
Hungary	1,099	41%	17%	19%	15%	8%
Ireland	301	36%	11%	24%	15%	14%
Italy	1,510	34%	14%	22%	14%	16%
Latvia	518	40%	19%	22%	11%	8%
Lithuania	516	42%	19%	18%	12%	9%
Luxembourg	239	40%	14%	19%	12%	15%
Malta	146	34%	18%	24%	13%	10%
Netherlands	1,034	39%	18%	18%	14%	10%
Poland	852	32%	19%	18%	20%	10%
Portugal	981	29%	15%	23%	16%	17%
Romania	825	33%	16%	28%	13%	10%
Slovakia	367	37%	18%	22%	13%	10%
Slovenia	560	43%	27%	13%	9%	8%
Spain	1,485	38%	17%	19%	14%	12%
Sweden	1,083	42%	20%	19%	10%	8%
United Kingdom	701	40%	16%	18%	13%	14%

Of the 36,915 MM respondents who were reached for a CATI reminder, and who did not refuse to participate during the reminder, 6,849 had completed the online survey by the end of the fieldwork period. This means that 19% of "successful" CATI reminders resulted in an online completed interview, and that 31% of all MM online completes were collected after the CATI reminder.

Table 52: Timing of online completes and outcome of the CATI reminder (MM), by country

	Online MM before CATI reminder was attempted	**Spoken to MM during CATI reminder** (no refusal)	**Online MM completed after CATI reminder**	***% online completes after CATI reminder out of successful CATI reminders***	***% online completes after CATI reminder out of all online completes***	**"Other" online completes[(1)]**
All countries	**15,118**	**36,915**	**6,849**	***19%***	***31%***	**63**
Austria	761	1,106	245	*22%*	*24%*	5
Belgium	809	1,635	206	*13%*	*20%*	1
Bulgaria	631	2,502	403	*16%*	*39%*	0
Croatia	370	901	194	*22%*	*34%*	0
Cyprus	76	274	48	*18%*	*39%*	0
Czechia	768	640	141	*22%*	*15%*	7
Denmark	806	1,276	216	*17%*	*21%*	0
Estonia	377	447	118	*26%*	*24%*	6
Finland	693	1,317	340	*26%*	*33%*	1
France	908	1,546	461	*30%*	*34%*	1
Germany	513	2,707	202	*7%*	*28%*	0
Greece	286	1,845	214	*12%*	*42%*	6
Hungary	730	1,311	348	*27%*	*32%*	21
Ireland	203	582	98	*17%*	*33%*	0
Italy	903	2,095	606	*29%*	*40%*	1
Latvia	379	786	136	*17%*	*26%*	3
Lithuania	365	884	151	*17%*	*29%*	0
Luxembourg	175	612	63	*10%*	*26%*	1
Malta	90	204	52	*25%*	*36%*	4
Netherlands	742	1,543	291	*19%*	*28%*	1
Poland	551	1,371	301	*22%*	*35%*	0
Portugal	587	1,727	394	*23%*	*40%*	0
Romania	496	1,845	327	*18%*	*40%*	2
Slovakia	273	421	92	*22%*	*25%*	2
Slovenia	325	875	235	*27%*	*42%*	0
Spain	1,018	2,520	466	*18%*	*31%*	1
Sweden	802	1,171	281	*24%*	*26%*	0
United Kingdom	481	2,772	220	*8%*	*31%*	0

Note: (1) Online completes among respondents that refused during the CATI reminder or that could not be reached for a CATI reminder.

In attempt to increase the number of MM online completes, additional CATI reminders were conducted in 11 countries (listed in Table 53). In total, 1,814 MM were selected for this additional CATI reminder, and 1,279 were reached again by the interviewer. The selection consisted of MM respondents who had indicated during the first CATI reminder that they would complete (or think about completing) the online survey but had not yet done so; in most countries, the selection was restricted to MM who had already started to complete the survey, but in Malta and Cyprus, the selection was extended to respondents who had not yet started the survey. From the MM selected for an additional CATI reminder, 176 still went on the complete the online survey.

Table 53: Outcome of additional CATI reminder conducted (MM), by country

	2nd CATI reminder attempted	Spoken to MM during 2nd CATI reminder	Online completes among MM for which 2nd CATI reminder was attempted
All countries	**1,814**	**1,279**	**176**
Cyprus	191	129	13
Estonia	31	23	2
France	718	569	68
Germany	165	27	3
Greece	120	77	34
Luxembourg	31	26	2
Malta	143	119	10
Poland	43	40	9
Romania	155	129	15
Spain	124	85	15
United Kingdom	93	55	5

13.1.3 Timing of ER online completes

Table 54 shows that, out of the 3,095 ER who completed the online survey, 44% did so before the first email reminder was sent and 25% after the first email reminder, but before the second email reminder. The proportion of ER who completed the online survey after the fourth email reminder was slightly higher than the proportion completing the survey after the third email reminder; this is most likely an effect of the additional CATI reminders that were conducted at the end of the fieldwork period (see Table 56).

Table 54: Timing of online complete (ER), by country

Online ER completed:	Base	Before 1st email reminder	After 1st email reminder, before 2nd email reminder	After 2nd email reminder, before 3rd email reminder	After 3rd email reminder, before 4th email reminder	After 4th email reminder
All countries	**3,095**	**44%**	**25%**	**12%**	**8%**	**11%**
Austria	166	43%	18%	12%	7%	20%
Belgium	100	38%	18%	13%	13%	18%
Bulgaria	101	57%	21%	12%	3%	7%
Croatia	72	43%	18%	15%	8%	15%
Cyprus	3	67%	0%	0%	0%	33%

Online ER completed:	Base	Before 1st email reminder	After 1st email reminder, before 2nd email reminder	After 2nd email reminder, before 3rd email reminder	After 3rd email reminder, before 4th email reminder	After 4th email reminder
Czechia	46	30%	30%	13%	9%	17%
Denmark	134	41%	31%	13%	8%	7%
Estonia	17	35%	24%	18%	6%	18%
Finland	470	49%	27%	11%	6%	7%
France	429	49%	23%	11%	6%	10%
Germany	67	31%	34%	9%	12%	13%
Greece	9	11%	33%	11%	22%	22%
Hungary	34	38%	29%	12%	6%	15%
Ireland	6	67%	17%	0%	0%	17%
Italy	188	53%	20%	8%	4%	16%
Latvia	12	25%	42%	17%	0%	17%
Lithuania	133	44%	26%	15%	10%	5%
Luxembourg	39	26%	31%	10%	13%	21%
Malta	5	100%	0%	0%	0%	0%
Netherlands	341	41%	26%	14%	11%	9%
Poland	48	31%	29%	19%	8%	13%
Portugal	17	41%	24%	6%	0%	29%
Romania	77	45%	30%	9%	5%	10%
Slovakia	27	33%	26%	19%	7%	15%
Slovenia	23	48%	17%	22%	9%	4%
Spain	196	54%	21%	7%	9%	9%
Sweden	309	36%	27%	13%	10%	13%
United Kingdom	26	42%	23%	23%	0%	12%

Of the 5,047 ER respondents who were reached for a CATI reminder, and who did not refuse to participate in the study, 2,315 had completed the online survey by the end of the fieldwork period. In other words, 46% of "successful" CATI reminders to ER respondents resulted in a completed interview. Moreover, 75% of all ER online completes were obtained after the CATI reminder had been completed. These figures are substantially higher than for MM online completes, but this, of course, is due to the different timing of the CATI reminder (after the email invitation, instead of after the second email reminder).

Table 55: Timing of online completes and outcome of the CATI reminder (ER), by to country

	Online ER before CATI reminder was attempted	**Spoken to ER during CATI reminder** (no refusal)	**Online ER completed after CATI reminder**	***% online completes after CATI reminder out of successful CATI reminders***	***% online completes after CATI reminder out of all online completes***	**"Other" online completes[(1)]**
All countries	**771**	**5,047**	**2,315**	**46%**	**75%**	**9**
Austria	43	229	123	54%	74%	0
Belgium	45	273	55	20%	55%	0
Bulgaria	12	225	89	40%	88%	0
Croatia	23	112	49	44%	68%	0
Cyprus	1	5	2	40%	67%	0
Czechia	15	58	30	52%	65%	1
Denmark	42	215	92	43%	69%	0
Estonia	10	20	7	35%	41%	0
Finland	135	581	335	58%	71%	0
France	84	651	345	53%	80%	0
Germany	16	148	51	34%	76%	0
Greece	1	22	8	36%	89%	0
Hungary	11	39	21	54%	62%	2
Ireland	0	40	6	15%	100%	0
Italy	27	286	161	56%	86%	0
Latvia	6	18	6	33%	50%	0
Lithuania	38	196	90	46%	68%	5
Luxembourg	17	74	22	30%	56%	0
Malta	3	9	2	22%	40%	0
Netherlands	85	565	256	45%	75%	0
Poland	10	77	38	49%	79%	0
Portugal	2	27	15	56%	88%	0
Romania	20	234	57	24%	74%	0
Slovakia	10	39	16	41%	59%	1
Slovenia	9	40	14	35%	61%	0
Spain	52	287	144	50%	73%	0
Sweden	44	447	265	59%	86%	0
United Kingdom	10	130	16	12%	62%	0

Note: (1) Online completes among respondents that refused during the CATI reminder or that could not be reached for a CATI reminder.

More than 1,300 ER respondents were selected for a second CATI reminder. Out of these, 763 were reached again by the interviewer (57%). From the ER selected for an additional CATI reminder, 120 still went on the complete the online survey. The largest number of additional online completes after the second CATI reminders were obtained in Austria (26 additional ER online completes), Italy (17) and Sweden (16).

Table 56: Outcome of additional CATI reminder conducted (ER), by country

	2nd CATI reminder attempted	**Spoken to ER during 2nd CATI reminder**	**Online completes among ER for which 2nd CATI reminder was attempted**
All countries	**1,343**	**763**	**120**
Austria	111	105	26
Belgium	155	75	2
Bulgaria	34	31	5
Croatia	58	42	3
Cyprus	3	1	1
Czechia	21	8	2
Denmark	80	30	3
Estonia	13	6	2
Finland	17	13	3
France	62	41	6
Germany	64	56	4
Greece	13	3	2
Hungary	19	12	3
Ireland	30	10	0
Italy	110	39	17
Latvia	9	4	0
Luxembourg	50	48	6
Malta	4	3	0
Poland	32	27	5
Portugal	13	8	2
Romania	35	18	1
Slovakia	19	9	2
Slovenia	23	20	0
Spain	120	49	8
Sweden	152	85	16
United Kingdom	96	20	1

Part C. Data validation, weighting and quality control

14. Data validation and editing

14.1 Data quality of contact and screener data

14.1.1 Contact data

Fieldwork rules aim to ensure that all sampled establishments are given a fair chance to participate in the survey. All local fieldwork teams had to follow a set of fieldwork rules when scheduling telephone calls for screener interviews. The fieldwork rules specified that all cases without a final call outcome (e.g. no answer, answering machine, busy, soft and hard appointment) should satisfy the following rule to be considered a 'final' contact for which no further survey effort was required:

- At least six contact attempts,
- on different days (at least three different weekdays out of 6 contact attempts),
- at different time of the day (at least one call must be in the morning, and one in the afternoon out of 6 contact attempts).
- The calls should be spread over two consecutive weeks.

An analysis was carried out to check compliance with the fieldwork rules during the telephone screener survey. The checks of the fieldwork rules considered cases without final outcome, such as "recall" and "appointment" (intermediate outcomes), but excluded cases with a final outcome, such as unsubscribed, completed and refused.

"Open" sample records at the end of the fieldwork period

The first of the fieldwork rules (at least six contact attempts) was closely monitored during fieldwork to ensure sample entries were contacted gradually, to avoid contacting a lot of cases very late in fieldwork or leaving many cases open until very late in fieldwork. In one country (Italy), the number of open contacts, defined as records with less than six call attempts and without a final outcome, was over 10% at the end of the fieldwork period. The percentage of "open" sample for each country is presented in the first column in Table 57.

In Italy, the percentage of "open" sample calculated at the end of the fieldwork was 12%; however, 28% of the "open" sample consisted of establishments with a call outcome "possible wrong number". The percentage of "open" sample, after excluding these records, was 9%. Throughout the fieldwork period, the CATI team in Italy used this call outcome to identify records with an unusable (non-working or wrong) telephone number, and allowed the team to look up an alternative telephone number. At the end of the fieldwork period, the telephone lookups were stopped and roughly 900 records had as final call outcome 'possible wrong number'.

Compliance with fieldwork rules

The second column in Table 57 looks at the percentage of sample dialled in each country for which at least one violations of the fieldwork rules was observed. The proportion was calculated by summing the 'open' and of those six attempts, at least one violation (consecutive weeks, different days, morning/afternoon).

Across countries, for 5.4% of sample records, the fieldwork rule checks showed at least one violation. There were two countries, in addition to Italy (see above), with roughly 10% of records out of the total sample dialled for which at least one fieldwork rule was not respected: Poland (10.6%) and Slovakia (9.9%).

Table 57: CATI screener fieldwork rules and checks performed, by country

	% 'open' records (<6 attempts, non-final outcome)	**% records violating at least one fieldwork rule**	**Total sample dialled**
All countries	4.6%	5.4%	419,159
Austria	3.7%	4.3%	17,961
Belgium	5.2%	5.8%	13,569
Bulgaria	4.0%	4.1%	13,449
Croatia	0.7%	5.3%	5,068
Cyprus	0.1%	0.6%	3,735
Czechia	5.8%	5.9%	33,330
Denmark	0.0%	1.3%	11,275
Estonia	0.1%	0.3%	4,572
Finland	0.6%	1.7%	7,307
France	4.4%	5.5%	22,311
Germany	4.4%	4.7%	24,867
Greece	3.0%	3.0%	8,966
Hungary	0.2%	3.1%	21,018
Ireland	0.0%	0.6%	8,158
Italy	12.3%	12.4%	24,487
Latvia	3.1%	4.7%	4,819
Lithuania	0.0%	0.1%	3,242
Luxembourg	2.0%	2.1%	4,724
Malta	0.0%	0.0%	1,813
Netherlands	1.6%	1.8%	13,634
Poland	9.1%	10.6%	55,367
Portugal	0.0%	0.0%	15,417
Romania	3.1%	4.1%	19,474
Slovakia	8.1%	9.9%	8,606
Slovenia	4.0%	4.6%	3,734
Spain	7.4%	8.6%	35,364
Sweden	0.1%	0.3%	12,834
United Kingdom	1.6%	1.9%	20,058

14.1.2 Screener interviews

Several checks were applied in the telephone screener script to ensure that implausible values in the company and establishment size questions were avoided and that the selection process worked smoothly. Please see the Data editing report for the list of consistency checks, and the error messages, implemented in the telephone screener survey.[46]

'Hard' checks

Two hard checks were put in place in the telephone screener script. The first check popped up when interviewers reported that there was no suitable MM respondent in the establishment. This

[46] Eurofound and Cedefop (2020), *European Company Survey 2019: Data editing report*, European Company Survey 2019 series, Eurofound working paper, Dublin (https://www.eurofound.europa.eu/publications/report/2020/european-company-survey-2019-workplace-practices-unlocking-employee-potential#wp-101979).

message was introduced after the pilot to remind interviewers that different individuals in an establishment could qualify to respond to the MM online survey and avoid interviews being terminated due to inability to find a suitable respondent within the establishment. The issues discussed in Section 11.2.1, however, suggest that the error message could not avoid that this response was selected by a considerable number of interviewers across many countries.

The second 'hard' warning was shown when an ineligible activity sector was selected (in the follow-up question that was asked to respondents who answered that the activity sector on the sample frame was not correct). This warning message was shown in 946 screener interviews. In 234 of these interviews, the activity sector was revised to an eligible sector after this warning message.

Implausible values

The remaining checks implemented in the telephone screener script were soft checks. These checks prompted a message that an implausible value was given by the respondent, but the script could be continued even if the respondent was not able to provide a more plausible response. Two checks are discussed below:

- Number of employees in the subsidiary site/headquarters is larger than the number of employees in the company in total: this message was shown in 20 of the completed screener interviews and the response given was revised in 17 of these screener interviews. For the remaining three records, the final data shows that the size for the subsidiary site/headquarters is higher than the size for the company in total.
- Number of employees in 10+ establishments is higher than total number of employees in the company (reported in selection step): this message was shown in 216 of the completed screener interviews and the response given was revised in 101 of these interviews. For the remaining 115 records, the final data contains an incorrect value for either the total number of employees in the company or for the number of establishments with 10 or more employees.[47]

14.2 Data quality online interviews (MM and ER)

14.2.1 Survey length and device used

It took MM respondents, on average, 25 minutes and 15 seconds (median duration) to complete the online survey. ER respondents needed, on average, 18 minutes and 44 seconds (median duration) to complete the online survey for ER.

Out of the 22,030 respondents who completed the MM questionnaire during mainstage fieldwork, just 3% did so on a tablet or smartphone. By comparison, of the 3,095 ER respondents in the main stage, 15% completed the ER online questionnaire on a smaller screen (tablet or smartphone).

An analysis of survey length by device used, showed some differences in median length for both MM and ER respondents. For MM, respondents completing the survey on a desktop or notebook needed, on average, 25 minutes and 17 seconds to complete all questions, while those completing the survey on a tablet answered all questions in 26 minutes and 9 seconds (median duration). Finally, smartphone respondents completed the survey in 24 minutes and 24 seconds. Among ER, tablet and smartphone respondents completed the online survey in 19 minutes and 51 seconds (median duration), while those completing the survey on a desktop or notebook needed, on average, 18 minutes and 31 second to respond to all questions.

[47] It is likely that some respondents reported the total number of establishments in the company, rather than only the number of establishments with at least 10 employees. It was noted in Section 11.4 that some of the 'additional' establishments selected turned out to be ineligible when contacted, as they had fewer than 10 employees.

Table 58: Device used completed online interviews (MM and ER), by country

	MM Completes	% Tablet/ Smartphone	ER completes	% Tablet/ Smartphone
All countries	**22,030**	***3%***	**3,095**	***15%***
Austria	1,011	*3%*	166	*4%*
Belgium	1,016	*1%*	100	*6%*
Bulgaria	1,034	*4%*	101	*8%*
Croatia	564	*4%*	72	*13%*
Cyprus	124	*9%*	3	*33%*
Czechia	916	*1%*	46	*2%*
Denmark	1,022	*5%*	134	*19%*
Estonia	501	*2%*	17	*6%*
Finland	1,034	*7%*	470	*20%*
France	1,370	*4%*	429	*17%*
Germany	715	*2%*	67	*0%*
Greece	506	*2%*	9	*11%*
Hungary	1,099	*3%*	34	*9%*
Ireland	301	*7%*	6	*20%*
Italy	1,510	*2%*	188	*28%*
Latvia	518	*3%*	12	*17%*
Lithuania	516	*4%*	133	*10%*
Luxembourg	239	*4%*	39	*10%*
Malta	146	*1%*	5	*40%*
Netherlands	1,034	*3%*	341	*8%*
Poland	852	*1%*	48	*8%*
Portugal	981	*2%*	17	*40%*
Romania	825	*8%*	77	*20%*
Slovakia	367	*1%*	27	*4%*
Slovenia	560	*1%*	23	*18%*
Spain	1,485	*2%*	196	*18%*
Sweden	1,083	*7%*	309	*20%*
United Kingdom	701	*3%*	26	*19%*

14.2.2 Consistency checks, back button use and re-starts

Consistency checks and warning messages

As noted in Section 3.3.2, most checks implemented in the MM and ER online questionnaires were soft checks. As a reminder, soft checks prompt the respondent to verify a response; however, as opposed to hard checks, respondents can 'override' the soft checks in the questionnaire and proceed to the next question. A slim majority (56%) of MM respondents was shown at least one warning to verify a response; this figure varied from 45% in Finland to 78% in Slovakia. The proportion of ER respondents that was shown at least one warning message was lower, at 14%

(although it should be added that fewer checks were implemented in the ER online questionnaire than in the MM online questionnaire).

Back-button use

In addition to using mainly soft checks to avoid break-offs, it was also decided to include a back button on every page in the MM and ER online surveys. Not using a back button would lead to a higher level of break-offs, as this would force respondents to just go forwards, even if they realised that they have made an error that they want to correct. Two-thirds (67%) of MM respondents 'went back' at least once in the questionnaire; this figure ranged from 53% in Spain to 74% in Croatia. Among ER respondents, 57% used the back button at least once.

Restarts – respondents completing the online survey in more than one session

During the screener interview, and via the email invitation and reminders, respondents were informed that they could stop the survey at any time and start again later when they were able to do this. When restarting, respondents returned to the survey where they had stopped. Both among MM and ER, 22% of respondents stopped the survey at least once, and restarted again later – i.e. they completed the online survey in more than one session. Among MM, this figure varied between 14% in Finland and 38% in Malta.

Table 59: Consistency checks, back-button use and restarts (MM), by country

	Base size	MM shown at least one warning		MM who went back at least once		MM who restarted at least once	
All countries	*22,030*	12,431	(56%)	14,743	(67%)	4,939	(22%)
Austria	1,011	541	(54%)	575	(67%)	198	(20%)
Belgium	1,016	512	(50%)	365	(72%)	183	(18%)
Bulgaria	1,034	695	(67%)	1,089	(72%)	260	(25%)
Croatia	564	313	(55%)	722	(74%)	145	(26%)
Cyprus	124	63	(51%)	258	(70%)	35	(28%)
Czechia	916	494	(54%)	105	(72%)	188	(21%)
Denmark	1,022	567	(55%)	584	(71%)	179	(18%)
Estonia	501	280	(56%)	696	(69%)	81	(16%)
Finland	1,034	463	(45%)	1,030	(69%)	148	(14%)
France	1,370	896	(65%)	89	(72%)	324	(24%)
Germany	715	361	(50%)	639	(62%)	131	(18%)
Greece	506	282	(56%)	386	(68%)	166	(33%)
Hungary	1,099	628	(57%)	961	(70%)	246	(22%)
Ireland	301	151	(50%)	462	(65%)	68	(23%)
Italy	1,510	736	(49%)	380	(68%)	422	(28%)
Latvia	518	325	(63%)	606	(66%)	110	(21%)
Lithuania	516	391	(76%)	297	(59%)	120	(23%)
Luxembourg	239	148	(62%)	714	(65%)	54	(23%)
Malta	146	105	(72%)	371	(72%)	55	(38%)

	Base size	MM shown at least one warning		MM who went back at least once		MM who restarted at least once	
Netherlands	1,034	488	(47%)	700	(68%)	187	(18%)
Poland	852	424	(50%)	678	(67%)	212	(25%)
Portugal	981	520	(53%)	657	(64%)	259	(26%)
Romania	825	588	(71%)	159	(67%)	243	(29%)
Slovakia	367	285	(78%)	718	(66%)	104	(28%)
Slovenia	560	319	(57%)	641	(63%)	128	(23%)
Spain	1,485	809	(54%)	160	(53%)	328	(22%)
Sweden	1,083	655	(60%)	302	(58%)	245	(23%)
United Kingdom	701	392	(56%)	399	(57%)	120	(17%)

Table 60: Consistency checks, back-button use and re-starts (ER), by country

	Base size	ER shown at least one warning		ER who went back at least once		ER who restarted at least once	
All countries	3,095	439	(14%)	1,776	(57%)	670	(22%)
Austria	166	24	(14%)	105	(63%)	33	(20%)
Belgium	100	9	(9%)	62	(62%)	24	(24%)
Bulgaria	101	18	(18%)	58	(57%)	32	(32%)
Croatia	72	12	(17%)	37	(51%)	23	(32%)
Cyprus	3	0	(0%)	2	(67%)	1	(33%)
Czechia	46	5	(11%)	26	(57%)	15	(33%)
Denmark	134	25	(19%)	68	(51%)	20	(15%)
Estonia	17	3	(18%)	10	(59%)	1	(6%)
Finland	470	63	(13%)	277	(59%)	70	(15%)
France	429	56	(13%)	224	(52%)	85	(20%)
Germany	67	10	(15%)	38	(57%)	9	(13%)
Greece	9	4	(44%)	3	(33%)	6	(67%)
Hungary	34	4	(12%)	13	(38%)	3	(9%)
Ireland	6	1	(17%)	6	(100%)	2	(33%)
Italy	188	21	(11%)	128	(68%)	60	(32%)
Latvia	12	3	(25%)	4	(33%)	1	(8%)
Lithuania	133	16	(12%)	75	(56%)	40	(30%)
Luxembourg	39	5	(13%)	25	(64%)	12	(31%)
Malta	5	0	(0%)	2	(40%)	1	(20%)
Netherlands	341	23	(7%)	198	(58%)	77	(23%)
Poland	48	8	(17%)	24	(50%)	9	(19%)
Portugal	17	1	(6%)	13	(76%)	4	(24%)
Romania	77	17	(22%)	40	(52%)	23	(30%)

	Base size	ER shown at least one warning		ER who went back at least once		ER who restarted at least once	
Slovakia	27	4	(15%)	15	(56%)	12	(44%)
Slovenia	23	4	(17%)	7	(30%)	6	(26%)
Spain	196	29	(15%)	126	(64%)	51	(26%)
Sweden	309	71	(23%)	174	(56%)	43	(14%)
United Kingdom	26	3	(12%)	16	(62%)	7	(27%)

14.2.3 Overall quality score

The online survey data were evaluated by several quality markers that fed into an overall quality score for each respondent (MM and ER). The quality indicators included in this calculation are given in the table below. The scripts calculating the overall quality score per respondent were developed by Eurofound (in SPSS and R) and the Data quality and editing report contains more details about the calculation of this quality score. [48]

In total, 161 MM completed interviews and 22 ER completed interviews were dropped from the final data due to quality issues (identified based on the overall quality score calculated). Both for MM and ER, the proportion of cases dropped due to quality issues represents less than 1% of the total number of completed interviews. Please refer to Table 20 for an overview of the number of interviews dropped to quality issues in each country.

Table 61: Data quality indicators used in the calculation of overall quality score per respondent (MM and ER)

MM Survey	**ER survey**
Survey length − short surveys were flagged but this was not used as a hard exclusion criterion due to potential technical issues in recording survey length accurately for some cases.	Survey length − short surveys were flagged but this was not used as a hard exclusion criterion due to potential technical issues in recording survey length accurately for some cases.
Missing data (% of item non-response)	Missing data (% of item non-response)
Number of consistency checks shown	Number of consistency checks shown
Straight lining (no. of straight-lined question set)	Straight lining (no. of straight-lined question set)
Speeding (no. of sections respondent speeded)	Speeding (no. of sections respondent speeded)
Implausible answers – inconsistency between reported number of non-managerial employees and the numbers reported in the follow-up questions about employees (e.g. questions EMPPERM, and skills questions)	Implausible answers – inconsistency between employees who took part in the activity and total number of employees (e.g. STRIKEPART, RULEPART)
Implausible answers – out of range responses to ranking questions	
Implausible answers – number of hierarchical levels reported by organisations (HIERA) is high relative to number of employees	
Non-response at two-digit sector question (MAINACT2D)	

[48] Eurofound and Cedefop (2020), *European Company Survey 2019: Data editing report*, European Company Survey 2019 series, Eurofound working paper, Dublin (https://www.eurofound.europa.eu/publications/report/2020/european-company-survey-2019-workplace-practices-unlocking-employee-potential#wp-101979).

15. Weighting strategy

This section describes the weighting approach implemented in ECS 2019 and summarizes the results from the weighting process. Weighting is required to correct for any disproportionalities in representation due to sampling design and non-response. In addition to these requirements, there is value in weighting to ensure equivalent outcomes to the previous ECS and continuity in trend estimates. As such, any proposed deviations from the previous survey's weighting strategy were considered when deciding on the weighting approach.

15.1 Steps used in the weighting

Four types of weights were estimated: design weights, non-response weights, calibration weights and cross-national weights. An additional stage was required if the sampling frame was at the company level.

15.1.1 Design weights (Step 1)

The first step of weighting was undertaken to account for the disproportionate sampling probabilities across the sampling cells (design weighting).[49] The weights were calculated as the reciprocal of the probability of selection of each sampled case within each of the sampling strata (i.e. three sector by three size class strata, giving a total of nine cells). The probability of selection of a given sampled case at this stage of the selection is based on the sampling frame numbers and as such is agnostic to the level of the sampling frame (establishments or companies). Further, the probability is determined by the information on the sampling frame rather than that given in the interview. In other words, sampled cases that turned out (during the interview) to belong to a different stratum to the one they were sampled from (termed 'stratum jumpers') were given the same weight as other cases in their original sampling stratum.

Because cases can jump across the strata it is usual to end up with an extreme range of weights within the analysis cells, which was the case for this survey and would impact on the efficiency for analyses of sub-groups if left unchecked.[50] In order to reduce the impact of this, it is standard practice to trim the weights. The WERS approach (Workplace Employment Relations Survey 2011[51]) is to trim any sample design weights that are three times larger/smaller than the expected weight within each interview-recorded weighting cell (i.e. across the nine strata) and this is the approach that was adopted Trimming the weights does slightly alter the weighted profile within each analysis cell but is a price worth paying for increased efficiency.

15.1.2 Non-response adjustment – screener stage (Step 2)

Following the sequence of the survey the first modelling stage was to account for response to the screener stage. Following a stage of testing different approaches, a first logit model was used to model the outcome of CATI screener completion, on each country separately, with the following characteristics:

- Outcome variable: productive screener interviews in which MM and/or ER contact details were obtained.

[49] For an example of this from a different high-quality survey see the Workplace Employment Relations Survey (WERS): http://doc.ukdataservice.ac.uk/doc/7226/mrdoc/pdf/7226_the_design_and_administration_of_the_2011_wers_5_august_2013.pdf, page 16-17.

[50] If, for example, an analysis was to look at small establishments with 10-49 employees, where the analysis would be based on the set of cases that gave this size in the interview, sample precision will be reduced if the weights were not trimmed because of the range of weights in the small firms sub-group; given the cases in this cell will also have been sampled in other cells on the sampling frame (termed 'stratum jumpers').

[51] http://doc.ukdataservice.ac.uk/doc/7226/mrdoc/pdf/7226_the_design_and_administration_of_the_2011_wers_5_august_2013.pdf (page 16-17).

- Base: all cases in the dialled gross sample, excluding cases that were out of sample during dialling. Cases found to be ineligible in the screener interview were included in the base, given that this information is only available for cases that are successfully screened
- Predictors (from the sampling frames): top level NACE category, sampling stratum size category (3 categories) and region.[52] Any cells with <30 cases in the base at a country level were first combined with a neighbouring category (if one exists) or with the largest category.

The inclusion of top-level NACE at this stage was done to provide additional control across the sectors, beyond the three categories of the sampling strata. It was included at this stage given it offered the largest sample sizes, whereas at the interview stage some countries had samples that were too small for such a finely grained weighting scheme.

The inverse probability of response to the screener stage, from the model, was used to form the weight for this stage.

Please see the Sampling and weighting report for more detail on the NUTS level region used in the non-response models and the collapsed top-level NACE sectors used in the CATI non-response model.[53]

15.1.3 Non-response adjustment – CAWI interview stage (Step 3)

To account for non-response between the screener and interview stages, a second logit model was run of the outcome of the interview stage (on the CATI screener sample). At this stage response was modelled to both the MM and ER interviews, in one model, in order to be able to weight companies with only an ER interview. This model had the following characteristics:

- Outcome variable: response to the MM or ER interview – i.e. any site with response to one of these was counted as productive.
- Base: cases where an invitation email to participate in the MM or ER interview was sent, including, for company-level sampling frame countries, the additional establishments that were identified in the screener interview for the first site contacted.
- Predictors (from the sampling frames): sector group (3 categories), size group (3 categories), region.[54]

The inverse probabilities of selection from the second model were also used to create the non-response weighting adjustment for this stage.

The same trimming approach was used in both the CATI and CAWI non-response adjustments, and it was applied only if the range of weights was higher than 10. Three lower and upper percentiles (1st, 2.5th, 5th and 95th, 97.5th, 99th) were evaluated and the pair that would bring the weight range to 10 or lower was used to trim the very small and very large weights. That is, maximum trimming is applied at 5th and 95th percentiles.

[52] Additional information was available but only for small numbers of countries, e.g. the founding year of the company. It was agreed to take a consistent approach to the weighting and include variables available for all countries only.

[53] Eurofound and Cedefop (2020), *European Company Survey 2019: Sampling and weighting report,* European Company Survey 2019 series, Eurofound working paper, Dublin (https://www.eurofound.europa.eu/publications/report/2020/european-company-survey-2019-workplace-practices-unlocking-employee-potential#wp-101981).

[54] Additional variables that were available from the CATI interview itself were also considered, particularly whether the company had been making a profit (which was a significant predictor when tested at the pilot stage), whether the company/establishment was multi-site or not, whether it was a headquarters or subsidiary, presence of an ER function in the company, and whether frame size or sector was updated in the screener. However, these variables were removed from the CAWI non-response adjustment to simplify the models and improve precision given smaller sample sizes at the CAWI stage. The significance of these variables varied across the countries while most often, with the exception of the profit question, they were not good predictors of response.

15.1.4 Design weight for establishment selection in company-level sampling frame countries (Step 4)

When a multi-site company was identified in the screening countries (i.e. those with sampling frames of companies), up to three of those subsidiary establishments were randomly sample (see Section 6.2.3). Although sampling up to three was an increase on the number of the previous surveys (of sampling one), the subsidiaries were still under-represented whenever a company had four or more eligible establishments.

The weights for these establishments were calculated as the reciprocal of their inclusion probability, being the number of establishments selected (i.e. one, two or three) divided by the number of eligible establishments in the company.

Given that this approach resulted in very large weights for companies with a lot of establishments the weights were also trimmed at this stage, with the trimming set at a maximum weight of five (equating to a company of 15 establishments – with three establishments selected the weight for each of these establishments would be five: the reciprocal of 3/15). This was the same level of trimming is in the previous ECS.

15.1.5 Calibration weighting (Step 5)

The final weighting stage was to adjust the design (selection) and non-response weighted interview sample to match the population estimates for selected key measures that were available, namely, activity sector and establishment size, the same variables that were used in the previous ECS.

Given the small sample sizes in many of the countries the same grouped categories were used as those used as sampling strata (three categories for each variable). It was found that a more finely grained calibration approach was not practical as it would introduce large weights.

The weighting targets were based directly on establishment-level statistics, wherever these were available. In 18 countries reference statistics were available only at the company level. To bring these statistics to the establishment level, the calibration targets were adjusted using an inflation factor estimated from the (design weighted) screener survey data. This involved computing the mean number of establishments per company in the applicable countries and using this to adjust to the reference statistics to the establishment level. The inflation was applied based on sector grouping, given that it is reasonable to expect that the establishments would be in the same sector as the parent company, whereas this assumption obviously did not hold for size (number of employees). This approach was used in 17 of the countries that collected information on number of establishments per company. In Luxembourg, this was not possible as the sampling frame was at establishment level and for this group of countries information on the number of establishments was not collected in the survey. Instead, the inflation factors were calculated based on the differences in numbers between the company-level and establishment-level sampling frame counts. See the annex in the Sampling and weighting report for the inflation factors used by country and sector group.

The bounded linear regression method was used to generate the calibration weights. The ‘calibrate’ command in Stata was used to estimate the weights. The bounded linear regression method did not converge or resulted in negative weights for two countries: Greece and Malta. Therefore, the logistic regression method was used for these two countries.

It is also worth noting that in Cyprus, Ireland, Luxembourg and Malta, construction and production sectors were collapsed into one category and calibrated to the population total for the construction sector plus production sector as the cell count was lower than 30 for one of these sector groups (in the MM only data file). Similarly, medium- and large-sised companies were merged when calibrating for size in Cyprus, Estonia, Ireland, Luxembourg, Latvia and Malta, as cell count for large companies was below 30 in these countries.

The calibration was based on the MM sample in the first instance, creating weights for this sample to represent establishments in Europe. To handle the ER sample, the full MM and ER samples were calibrated separately, to the same reference statistics as were used for the MM sample. This sample hence comprised of one of three types of establishments: (i) those for which there is both a MM and ER interview, (ii) those with only a MM interview and (iii) those with only an ER interview. Groups (i) and (iii) by definition have employee representation, whereas some group (ii) cases do not. This second group was, of course, not required for ER interview analysis, however, the rationale for calibrating to this full population is that it is aligned in terms of population definition with the reference statistics. More specifically, had the MM-only cases been *excluded* in the weighting scheme, the weighting would apply to the population of businesses with employee representation in place, which is a set of businesses for which there were no population statistics. Hence, the approach to weighting the ER sample was, in summary, to weight the full sample and then drop MM-only cases, the idea being that the sample remaining should be a representative sample of ER establishments.

15.2 Weighting evaluation

The weighted distributions in the MM survey effectively approximated the population distributions. After weighting, the deviations between population targets and the MM survey data by stratification cell remained below 5 percentage points for all cells. The trimming strategies defined above for each weighting step were effective in lowering the range of weights.

A design effect (DEFF) in its general form measures the relative increase or decrease in the variance of an estimator due to deviations from simple random sampling. The associated design effect for each weighting step is estimated using the following formula:

$$DEFF_p = n * \frac{\sum_{i=1}^{n} \mathrm{w1\_scaled}_i^2}{(\sum_{i=1}^{n} w1\_scaled_i)^2}$$

Note that this calculation of DEFF is based solely on the weights themselves whereas DEFF can also be calculated as a variable specific measure. Table 62 shows the design effects across countries by weighting step. The DEFF remained below two for all countries and across weighting steps except for Malta where it was 2.8 at the calibration stage. This was mainly due to substantive differences between the unweighted sample and the population distribution, and small sample size achieved in this country. Malta had a high proportion of stratum jumpers as well which contributed to the imbalance between the achieved sample and population distribution.

Table 62: Design effects by weighting step and country – MM online survey

		STEP1	**STEP2**	**STEP3**	**STEP4**	**STEP5**
		Design weight	Design & CATI nr wgt	Design & CATI nr & CAWI nr wgt	Design & CATI nr & CAWI nr & Establishment wgt	Design & CATI nr & CAWI nr & Establishment & Calibration wgt
	Sample size	*s1_wgt*	*wgt_s12*	*wgt_s123*	*wgt_s1,234*	*s5_wgt_final*
Austria	1,010	1.4	1.6	1.7	1.7	1.8
Belgium	1,011	1	1.1	1.2	1.2	1.3
Bulgaria	1,024	1	1.1	1.2	1.2	1.2
Croatia	560	1.2	1.3	1.3	1.3	1.4
Cyprus	122	1	1.1	1.3	1.3	1.4
Czechia	904	1	1.2	1.3	1.3	1.3
Denmark	1,011	1.1	1.2	1.2	1.2	1.3

		STEP1	STEP2	STEP3	STEP4	STEP5
		Design weight	Design & CATI nr wgt	Design & CATI nr & CAWI nr wgt	Design & CATI nr & CAWI nr & Establishment wgt	Design & CATI nr & CAWI nr & Establishment & Calibration wgt
	Sample size	*s1_wgt*	*wgt_s12*	*wgt_s123*	*wgt_s1,234*	*s5_wgt_final*
Estonia	501	1	1	1.1	1.1	1.1
Finland	1,032	1.2	1.2	1.2	1.2	1.2
France	1,360	1.3	1.4	1.4	1.4	1.5
Germany	711	1.2	1.2	1.3	1.3	1.4
Greece	501	1.1	1.2	1.4	1.4	1.5
Hungary	1,087	1	1.2	1.2	1.2	1.2
Ireland	300	1.1	1.2	1.2	1.2	1.3
Italy	1,498	1.2	1.2	1.3	1.3	1.3
Latvia	514	1.1	1.1	1.2	1.2	1.2
Lithuania	510	1.2	1.4	1.4	1.4	1.5
Luxembourg	237	1	1.3	1.6	1.6	1.7
Malta	145	1	1.6	1.9	1.9	2.8
Netherlands	1,030	1.3	1.3	1.4	1.4	1.5
Poland	842	1.1	1.5	1.5	1.5	1.7
Portugal	973	1.2	1.2	1.2	1.2	1.3
Romania	815	1.1	1.2	1.3	1.3	1.3
Slovakia	361	1.2	1.2	1.3	1.3	1.3
Slovenia	556	1.1	1.1	1.1	1.1	1.1
Spain	1,477	1.2	1.4	1.4	1.4	1.6
Sweden	1,080	1.1	1.1	1.2	1.2	1.3
United Kingdom	697	1.2	1.3	1.3	1.3	1.4

15.3 Weighting of the screener survey data set

In addition to MM and ER survey data, the CATI screener survey data were also weighted using a similar approach. The calculation of the weights for the screener data file involved four steps: design weights, CATI non-response weighting, establishment selection weights and finally calibration weighting. The same population as the MM and ER surveys were used for the screener data. Design weights (Step 1), CATI response weights (Step2) and establishments weights (Step 3) were calculated in the same way as the MM and ER data weighting. Please see the Sampling and weighting report for more detail on weighting of the screener survey data.

16. Quality assurance and ethical standards

The following sub-sections detail the approach to quality assurance that was taken for ECS 2019 by Ipsos, Eurofound, Cedefop and the local partner agencies. It also describes the ethical standards that were adhered to throughout the project and draws attention to specific stages, where consent and data protection were of particular importance.

16.1 Quality assurance plan and framework

The quality assurance approach for ECS 2019 was based on the quality concepts of the European Statistical System (ESS), as developed by Eurostat,[55] in addition to other quality frameworks such as the Cross-Cultural Survey Guidelines[56] and the Total Survey Error Approach.[57] The **Quality Assurance (QA) plan** for ECS 2019 was built around the five key quality criteria defined by the ESS but slightly redefined to make them more appropriate to ECS: Relevance and Timeliness, Accuracy, Accessibility, Coherence and Comparability, and Punctuality. The quality criteria are defined in the following table.

Table 63: Eurofound's quality criteria

Dimension	Description
Relevance & Timeliness	Relevance for users of the survey data and survey-based reports, both in terms of substance and timing of publication
Accuracy	Validity and reliability of the survey data
Accessibility	Availability of outputs and transparency of processes
Coherence & Comparability	Consistency with other data sets
Punctuality	Adherence to timeline as set at the start of the project

Although all five criteria have some bearing on all stages of the survey, quality monitoring in each of the stages is focussed on those criteria that require attention at that stage of the survey cycle. The quality criteria formed the basis of the **Quality Assurance framework**, which included quality indicators and targets for each quality dimension and (sub-)theme of the survey, specified the evidence to be provided, and included an indication of the role of each party (such as the local partner in different countries, the Ipsos coordination team, or Eurofound and Cedefop).

The QA plan was initially developed by Eurofound, all subsequent changes to the QA plan during the project were made by the designated delivery manager at Ipsos, in close cooperation and agreement with both Eurofound and Cedefop. This included adjusting indicators to reflect changes in the methodology.

16.1.1 QA reporting

The QA plan was a live document, which was monitored throughout the project and updated monthly by the Ipsos delivery manager. The updated versions of the QA plan were shared with Eurofound and Cedefop and potential deviations from targets were discussed and corrective action taken where possible. A separate Quality control report documents how the QA plan was implemented and whether each of the 126 quality assurance indicators were met by the end of the project.[58]

16.1.2 QA results

In total, 132 quality indicators were specified for ECS 2019, but during implementation, three indicators were dropped. For three further indicators, the results were either 'Not applicable' or 'TBC' by the end of the project. All six indicators have been excluded from the overall results. Of

[55] http://ec.europa.eu/eurostat/en/web/products-manuals-and-guidelines/-/QAF_2012

[56] http://ccsg.isr.umich.edu/index.php/chapters/survey-quality-chapter

[57] Herbert F. Weisberg (2005). The Total Error Approach. A Guide to the New Science of Survey Research. Chicago: Chicago University Press.

[58] Eurofound and Cedefop (2020), *European Company Survey 2019: Quality control report,* European Company Survey 2019 series, Eurofound working paper, Dublin (https://www.eurofound.europa.eu/publications/report/2020/european-company-survey-2019-workplace-practices-unlocking-employee-potential#wp-101982).

those that remained, 126,94 were 'requirements' and a further 32 were 'real-world targets'. In total, over three quarters of the requirements were met (75.5%); over half of the real-world targets were met (53.2%) and 7 in 10 of all targets were met overall (69.8%), as shown in Table 64.

Table 64: Overall QC targets and achievements

Category	Description	No. of targets	No. of targets achieved	% of targets achieved
Requirements	Targets that have to be achieved	94	71	75.5%
Real-world targets	Targets that are expected to be achieved. If they are not met, an explanation for not reaching them has to be provided	32	17	53.2%
Total		126	88	69.8%

Both Eurofound and Cedefop, and Ipsos met around 75% of the targets assigned to them – missing around 25%-30% of the targets each.[59] This section discusses those that were missed, how close each party came to meeting those and the extent to which missing the targets had serious implications for the quality of the survey in the context of the tables and sub-sections that are included in the Quality control report and summarised briefly below.

Quality assurance targets were set for different activities within each stage of the survey life cycle. For some aspects of the survey, only requirements were set (fieldwork training, pilot, data processing micro data and reporting) and for others (fieldwork infrastructure) only real-world targets were defined.

Table 65 summarises the requirements for each stage and the extent to which the targets were achieved; Table 66 summarises the real-world targets and the extent to which these were achieved.

Table 65: Required targets (by survey life cycle activity) and achievements

	Requirements		
	Number of targets	**Number of targets achieved**	**% of targets achieved**
Sampling	14	13	92.9%
Weighting	14	11	78.6%
Questionnaire	12	10	83.3%
Translation	13 (1)	7	63.6%
Scripting	4	4	100%
Fieldwork training	7	5	71.4%
Pilot	5	2	40%
(Mainstage) Fieldwork	4	3	75%
(Mainstage) Fieldwork monitoring and data validation	11	6	55%
Data Processing	3	3	100%
Micro data	8 (2)	6	75%
Reporting	2	1	50%

Note: (1) For two of the translation requirements, the results were 'Not applicable' so the base of 11 has been used to calculate the proportion of targets achieved. (2) For one of the micro data targets, the result was 'TBC' by the end of the project so the base of 7 has been used to calculate the proportion of targets achieved.

[59] Eurofound and Cedefop missed 25% (3 out of 12 targets) and Ipsos missed 26.5% (30 out of 113 targets) respectively. (The total number of targets used in these calculations excludes the final results that were 'not applicable' or 'TBC'.)

As shown, all the required targets set for **scripting** and **data processing** were met. One target was missed for **sampling** – the achieved sample sizes were smaller than those planned in nine countries. The main impact of not achieving or exceeding the planned sample size is that some sectors/sizes were under-represented in the achieved sample, thus lowering the quality of the achieved sample. One required target related to **micro data**, three relating to **delivery of weights** and one relating to **reporting** were also missed – all related to punctuality. To mitigate the impact, the delivery of outputs to Eurofound and Cedefop was staggered. Furthermore, one required punctuality target related to **(mainstage) fieldwork requirements** was also missed – fieldwork was not completed on time; however, extra interviews were completed in the additional days. Two **questionnaire** targets were missed – although the impact on the quality of the cognitive interviewing was negligible. Two required targets for **fieldwork training** were also missed – firstly – not all translated interviewer materials were delivered by the agreed time, however all were delivered prior to fieldwork starting. Secondly, other team members attended the fieldwork training compared to the project leader/country coordinators. However, all those attending training were responsible for managing and monitoring fieldwork on a day-to-day basis and had a key role in the delivery of the ECS 2019, so the quality of the fieldwork was not adversely affected by this. Three of the **pilot** requirements were not met, which had an impact on the quality of the pilot findings and Eurofound, Cedefop and Ipsos's ability to make decisions for the mainstage based on the pilot results. Three of the required **translation** targets missed related to punctuality. However, the delays did not have a detrimental impact on the quality of the translation process or the related outputs. The other translation target missed related to dissemination practices at Eurofound and Cedefop for translation materials but again, this did not have an impact on the quality of the materials used in the survey. Finally, seven of the 11 required targets for **(mainstage) fieldwork monitoring and data validation** were met. The four missed were close to being met and could be met in future waves with small adjustments to reporting procedures or the timing for fieldwork reporting. The quality of the fieldwork monitoring data was not compromised by missing these targets.

Table 66: Real world targets (by survey life cycle activity) and achievements

	Real-world targets		
	Number of targets	**Number of targets achieved**	**% of targets achieved**
Sampling	15	6	40%
Weighting	3	2	50%
Questionnaire	2	1	50%
Translation	2	2	100%
Fieldwork infrastructure	1	0	0%
Scripting	2	1	50%
(Mainstage) Fieldwork	2	1	50%
(Mainstage) Fieldwork monitoring and data validation	5	4	80%

As shown, all the real-word targets set for **translation** were met. One of the real-world targets set for each of the following survey stages was missed - **questionnaire**, **scripting**, **fieldwork infrastructure and (mainstage) fieldwork monitoring**. Those missed had variable impact on quality. For the **questionnaire** – four questions from the cognitive test where 'major' issues were detected were retained meaning that the target relating to this was missed. One **scripting** error was detected during the pilot test, which had a minor impact on the size of the groups assigned to each scenario. Ipsos did not have a fully integrated system for sample management (**fieldwork infrastructure**), this meant that there were gaps in the weekly fieldwork monitoring information, although no major problems occurred, and the quality of the fieldwork monitoring data was not compromised. For **mainstage fieldwork** – a target related to the size of the gross sample used compared to what was

planned was missed. Unfortunately, this had implications for quality of the sample as the cases sampled later were subject to the same contacting rules as those sampled from the outset, creating delays to the end of the fieldwork in some countries. A second target relating to the number of issues that had not been resolved by the end of the fieldwork period was missed. Two of the real-world targets for weighting were missed, one was close to being met with a result of 93% recorded. Nine of the 15 **sampling** targets were missed, these related to the availability of sampling frames, the recency of the reference statistics and the size of the net sample. The impact on the quality of the sample of not meeting these targets is explained in detail in the Quality control report.

16.1.3 QA improvements

During ECS 2019, there were two threats to data quality: a translation mistake in Sweden affecting the accuracy of the script overlay process and the sample extraction in Slovenia affecting the representativeness of the sample. Neither of these errors were directly measured by any of the existing quality indicators, so two new indicators have been proposed to capture checking processes to try to avoid a repetition of such mistakes in future waves. Given the consequences of missing either of these targets, both of these have been set as requirements. The two new indicators are shown in Table 67 below.

Table 67: Suggested new indicators for future waves

Survey area	Theme and quality dimension	#	New indicator wording	Target
Translation	Coherence & comparability	4.16	Number of errors detected in the language overlay process	0
Sampling	Accuracy	1.30	Percentage of countries where the total number of sampled services at the stratum level AND the distribution across the NACE sectors (the implicit stratification levels) matches the sample specification placed with the sample provider	100%

Further information can be found in the Quality control report.[60]

16.2 Ethical standards

Throughout ECS 2019, Eurofound, Cedefop, Ipsos and its network partners worked together to adhere to the highest level of ethical standards. As a market research agency, Ipsos and its network partners are compliant with the ESOMAR code of conduct[61] and are committed to ensuring that the research it conducts and coordinates complies with relevant regulatory and industry codes of practice, including data protection and other legal obligations in relevant countries. Ipsos has an integrated quality, compliance and information security management system, which includes appropriate policies, procedures and technological controls for the protection of information it holds and processes. The system is certified to ISO 9001, ISO 20252 and ISO 27001[62].

In line with these codes, standards and GDPR, specific attention was paid to:

- Consent for data collection

[60] Eurofound and Cedefop (2020), *European Company Survey 2019: Quality control report,* European Company Survey 2019 series, Eurofound working paper, Dublin (https://www.eurofound.europa.eu/publications/report/2020/european-company-survey-2019-workplace-practices-unlocking-employee-potential#wp-101982).

[61] Of relevance to this project, are the provisions on data minimisation (Article 3); best practice in primary data collection (Article 4); procedures for data protection and privacy (Article 6); transparency (Article 7) and professional and legal responsibilities (Articles 9 and 10).

[62] ISO 9001 the international standard for Quality Management Systems; ISO 20252 the international standard for Market, Opinion and Social Research and ISO 27001 the international standard for Information Security Management Systems.

- Consent to send a customised report (research findings)
- Consent to be re-contacted
- Opting out / data deletion
- Secure storage of sample data and respondent data (internally)
- Secure transfer of data e.g. from Ipsos to Eurofound/Cedefop

Furthermore, as mentioned in Section 8.3, a privacy policy was developed for ECS 2019, which was translated into all local languages and made available via a link in the email invitation and email reminders, and via a link in the online questionnaires. As part of the interviewer training, the requirements relating to GDPR and ethical standards were reiterated, and procedures explained.

16.2.1 Consent

Consent was sought from management and employee representatives for data collection. Respondents were informed that their responses would be used solely for research purposes, and would be stored separately from personal information such as name, telephone number and email address, which would be used to invite them to participate in the survey. They were told that their participation, together with their individual responses to the questions would be kept strictly confidential and that the results of the research would be anonymised, statistical information only, and that it would not be possible to identify them in any published results. Further reassurance was given that none of the information provided during this research would be used for marketing, nor that Ipsos would sell or pass on their information to any third party.

Management respondents were offered the opportunity to receive a customised summary report of research findings. This would allow them to compare their results to those of other workplaces in their sector and in their country. Consent was therefore sought to produce this report and send it to them. Ipsos made it clear that to produce the report, it would be necessary to link their contact details with their survey answers, but that this information would be stored separately with access restricted to Ipsos. The customised reports were not published and were not shared with anybody apart from the MM respondents themselves.

Eurofound and Cedefop expressed a desire to do follow-up research to gain better insight into workplace practices with regard to work organisation, human resource management and business outcomes in future. This could be case studies looking more in-depth in the implementation of these practices at the workplace, or online surveys, aimed at looking at related topics that are not covered in the current questionnaire, or looking at changes over time. To facilitate this, consent was sought to re-contact (by Eurofound and Cedefop or an organisation working on their behalf) and to keep contact details appended to survey answers. Assurance was given that the data would be kept secure; only used for this purpose and retained for a maximum of two years.

16.2.2 Opt-out / data deletion

Respondents/establishments were able to opt out or ask for their survey data to be deleted at any time. To do this, participants were asked to contact Ipsos, their local fieldwork team or Eurofound/Cedefop to request this - in line with the GDPR principle of the right to be forgotten. Email addresses and telephone numbers for each organisation were provided on the survey website and emails.

16.2.3 Secure storage and transfer of data

Personal, identifiable data was securely stored at Ipsos throughout ECS 2019. Similarly, all data was transferred securely between Ipsos and its partner agencies as well as between Ipsos and Eurofound/Cedefop where it was stored securely.

Annex

Table 68: Employee representative types and sampling rules, by country

	Trade union representation	Trade union represen-tative/shop steward	Works council	Public sector equivalent of works council	Non-union staff represen-tation	Non-union staff respresen-tative	Other country-specific bodies	Other country-specific individuals	Preference order	Multiple bodies possible	Routing
Austria			Betriebsrat	Personal-vertretung					3, 4	3	Ask for 3, if not present ask for 4
Belgium	Vakbonds-afvaardiging/ Délégation syndicale		Ondernemings-raad/ Conseil d'entreprises	Basisonder-handelings-comité (BOC)/ Comité de negotation particulier de base			Comité voor preventie en bescherming op het werk/ Comité pour la prevention et de la protection au travail		3, 4, 7, 1	1	Ask for 1, 3, and 7, if 3 is not present ask 4
Bulgaria	Синдикална организация/ секция					Представители на работниците и служителите		Представители за информиране и консултиране на работниците и служителите	1, 6, 8	1	Ask all, but select in preference order
Croatia		Sindikalni predstavnik/ povjerenik	Radničko vijeće						2,3	2, 3	Ask all, but select in preference order
Cyprus	Συνδικαλιστική Εκπροσώπηση/ Τοπική Επιτροπή								1	1	

	Trade union representation	Trade union represen-tative/shop steward	Works council	Public sector equivalent of works council	Non-union staff represen-tation	Non-union staff respresen-tative	Other country-specific bodies	Other country-specific individuals	Preference order	Multiple bodies possible	Routing
Czechia	Základní organizace odborového svazu/odborová organizace		Rada zaměstnanců						1, 3	1	Ask all, but select in preference order
Denmark		Tillids-repræsentant (TR)	Samarbejd-sudvalg (SU)						3, 2	2	Ask all, but select in preference order
Estonia	Ametiühingu usaldusisik/ Доверенное лицо профсоюза					Töötajate usaldusisik/Доверенное лицо работников			1, 6	1, 6	Ask all, but select in preference order
Finland		Luottamusmies	(Yhteistoiminta) neuvottelukunta			Luottamus-valtuutettu		Yhteistoimin-taedustaja	3, 2, 6, 8	2, 3, 6, 8	Start by asking 2 and 3, if there are no 2 or 3, ask 6, if there is no 6, ask 8
France		Délégué syndical	Comité d'enterprise/ comité d'établissement			Délégué du personnel	Comité social et économique or délégation unique du personnel (DUP)		2, 6, 7, 3	2, 6	Ask all, but select in preference order

	Trade union representation	Trade union represen-tative/shop steward	Works council	Public sector equivalent of works council	Non-union staff represen-tation	Non-union staff respresen-tative	Other country-specific bodies	Other country-specific individuals	Preference order	Multiple bodies possible	Routing
Germany	Vertrauens-körper		Betriebsrat	Personalrat	Mitarbeiter-vertretung (MAV)				3, 4, 5		Ask for 1 and 3, if 3 is not present ask for 5, if 5 is not present ask for 4. Select in preference order
Greece	Επιχειρησιακό σωματείο		Συμβούλιο Εργαζομένων		Ένωση προσώπων				1, 3, 5	1	Ask for 1 and 3, if neither exists ask for 5. Select in preference order
Hungary	Szakszervezet		Üzemi Tanács			Üzemi megbízott			3, 6, 1	1, 3, 6	Ask for 1 and 3, if 3 does not exist ask for 6. Select in preference order
Ireland		Workplace trade union representative	Statutory employee representation forum (Works council)		Non-union staff association (company council or 'expected body')		Joint consultative committee (JCCs)		2, 3, 5,7	2, 3, 5, 7	Ask all, but select in preference order

	Trade union representation	Trade union represen-tative/shop steward	Works council	Public sector equivalent of works council	Non-union staff represen-tation	Non-union staff respresen-tative	Other country-specific bodies	Other country-specific individuals	Preference order	Multiple bodies possible	Routing
Italy	Rappresentanza sindicale aziendale (RSA)		Rappresentanza sindicale unitaria (RSU)	Rappresentanza unitaria del personale (RUP)					3, 1, 4	1	Ask for 1 and 3, if neither are present, ask for 4. Select in preference order
Latvia	Arodbiedrības institūcija/Доверенное лицо профсоюза					Darbinieku pilnvarots pārstāvis/Доверенное лицо работников			1, 6	1, 6	Ask all, but select in preference order
Lithuania	Profesinė sąjunga		Darbo taryba					Darbuotojų patikėtinis	1, 3, 8	1, 8	Ask all, but select in preference order
Luxembourg			Comité mixte/ Betriebsrat		Délégation du personnel/ Personal-ausschuss				3, 5		Ask all, but select in preference order
Malta		Shop steward							2	2	
Netherlands			Onderneming-sraad	Personeels-vertegenwoor-diging					3, 4	3, 4	Ask for 3, if not present ask for 4
Poland	Związki zawodowe		Rada pracowników						1, 3	1, 3	Ask all, but select in preference order

	Trade union representation	Trade union represen-tative/shop steward	Works council	Public sector equivalent of works council	Non-union staff represen-tation	Non-union staff respresen-tative	Other country-specific bodies	Other country-specific individuals	Preference order	Multiple bodies possible	Routing
Portugal	Comissão Sindical (CS)	Delegado sindical	Comissão de Trabalhadores						1, 2, 3	1, 2	Ask for 1 and 3, if 1 is not present ask for 2. Select in preference order
Romania	Organizatie sindicala la nivel de intreprindere (Sindicat)					Reprezentanţii salariaţilor			6, 1	1, 6	Ask all, but select in preference order
Slovakia	Základná organizácia odborového zväzu - (Odborová organizácia)		Zamestnanecká rada			Zamestnanecký dôverník			1, 3, 6	1	Ask all, but select in preference order
Slovenia		Sindikalni zaupnik	Svet delacev			Delavski zaupnik			3, 6, 2	2	Ask all, but select in preference order
Spain	Sección sindical/ Secció sindical	Delegado sindical/ Delegat/da sindical	Comité de empresa/ Comitè d'empresa	Junta de personal/Junta de personal		Delegado de personal/Delegat/da de personal			1, 2, 3, 6, 4	1, 2	Ask for 1, 3 and 6, if 1 is not present ask for 2, if 3 is not present ask for 4. Select in preference order

	Trade union representation	Trade union represen-tative/shop steward	Works council	Public sector equivalent of works council	Non-union staff represen-tation	Non-union staff respresen-tative	Other country-specific bodies	Other country-specific individuals	Preference order	Multiple bodies possible	Routing
Sweden		Facklig förtroendeman							2	2	
United Kingdom	Recognised shop floor trade union representation	Shop steward	Works Council / Joint Consultative Committee						1, 2, 3		Ask for 1 and 3, if 1 is not present ask for 2. Select in preference order
Montenegro	Sindikat								1	1	
Serbia	Sindikat		Savet zaposlenih			Nesindikalni predstavnik zaposlenih			1, 3, 6	1	
North Macedonia		Синдикален претставник/përfaqësuesi i sindikatës							2	2	
Turkey	Sendika Temsilciliği						Iş sağlığı ve güvenliği için çalışan temsilcisi	Izin kurulu içindeki çalışan temsilcisi	1	1	

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