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Sozialforschung

SECOND EUROPEAN SURVEY OF ENTERPRISES ON NEW AND EMERGING RISKS (ESENER-2)

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and for **national sample boost clients**

submitted by

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List of abbreviations

Abbreviation	Full name/explanation
b2b survey	Business to business survey, i.e. survey among organisations (be it at the company/enterprise or at the establishment/local unit level)
CATI	**C**omputer **A**ssissted **T**elephone **I**nterviewing
CAWI	**C**omputer **A**ssissted **W**eb **I**nterviewing (online interviews)
ESENER	**E**uropean **S**urvey of **E**nterprises on **N**ew and **E**merging **R**isks
EU-OSHA	European Agency for Safety and Health at Work
LFS	Labour Force Survey
OSH	Occupational Safety and Health (also called "Health and Safety at Work")
SBR	Structural Business Register (register of business addresses compiled by each EU member state under coordination of EUROSTAT
SBS	Structural Business Statistics (statistics compiled by the national statisical offices on base of the SBR)
TP	Target Person
TripleC	TNS coordination centre for multi-country telephone surveys

Country abbreviations (in alphabetical order)			
AL	Albania	IT	Italy
AT	Austria	LT	Lithuania
BE	Belgium	LU	Luxembourg
BG	Bulgaria	LV	Latvia
CH	Switzerland	ME	Montenegro
CY	Cyprus	MK	FYROM (Republic of Macedonia)
CZ	Czech Republic	MT	Malta
DE	Germany	NL	Netherlands
DK	Denmark	NO	Norway
EE	Estonia	PL	Poland
EL	Greece	PT	Portugal
ES	Spain	RO	Romania
FI	Finland	RS	Serbia
FR	France	SE	Sweden
HR	Croatia	SI	Slovenia
HU	Hungary	SK	Slovakia
IE	Ireland	TR	Turkey
IS	Iceland	UK	United Kingdom

1 Introduction

1.1 The survey in brief

ESENER-2, the second ***E**uropean **S**urvey of **E**nterprises on **N**ew and **E**merging **R**isks*, is a large-scale multinational survey among organisations conducted **on behalf of the European Agency for Safety and Health at Work (EU-OSHA)** located in Bilbao, Spain. The aim of the survey is to collect **information on how health and safety is organized at workplaces across Europe**.

ESENER-2 covers both private and public establishments with **5 or more employees** from **almost all sectors of activity**. It covers **36 European countries** – the European Member States (EU28) plus Albania, Iceland, Macedonia (FYROM), Montenegro, Norway, Serbia, Switzerland and Turkey. Within each establishment, the **targeted respondent** was **defined as *"the person who knows best about health and safety in this establishment"***. In total, **49.320 establishments were interviewed for ESENER-2**.

Though the survey was primarily conducted as a telephone survey using the **CATI** technology (CATI = **C**omputer **A**ssisted **T**elephone **I**nterviewing), there is also a small number of interviews that were conducted online as CAWI interviews (CAWI = **C**omputer **A**ssisted **W**eb **I**nterviewing). CAWI interviewing was however restricted to respondents who refused to take part in the telephone interview, but were willing to fill in an online version of the survey.

Interviews were carried out between **July and October 2014**. In all countries, the same methodology was applied. All national **language versions of the survey questionnaire** were **strictly harmonized**, thus allowing for full comparability between the countries.

Further methodological details can be found in the following chapters of this report.

1.2 History and aims of the project

ESENER-2 is the second European-wide Enterprise survey on Health and Safety at Work commissioned by EU-OSHA. The first survey of this kind, ESENER-1, was conducted in the year 2009 in 31 countries (the then EU-27 plus Croatia, Turkey, Norway and Switzerland).

In terms of methodology, the two survey waves share many common features, but have also a number of important differences that need to be taken into account for any comparisons of figures from ESENER-1 (2009) and ESENER-2 (2014). The main methodological differences are related to the definition of respondents and the definition of the universe:

- While **ESENER-1** covered **establishments with 10 or more employees** only, **ESENER-2** covers **establishments with 5 or more employees**. Because of the high share the size-class 5 to 9 employees has within the overall ESENER-2 universe, its inclusion has a considerable impact on the overall results (particularly in the establishment-proportional perspective).

- Whereas ESENER-1 was confined to the NACE Rev. 2 sectors B to S, **ESENER-2** covers sectors A to S, i.e. it **additionally includes establishments of sector A "Agriculture, Forestry and Fishing"**. Since NACE A is a very small sector within the defined universe, the impact its inclusion has on the overall results is very limited.

- For **ESENER-1**, **two types of interviews** were conducted wherever this was possible: One with the management (the highest ranking person in charge of coordinating health and safety at the establishment) and one with an employee representative in charge of health and safety. In **ESENER-2**, there was **only one type of interview**, to be conducted with *"the person most knowledgeable about health and safety in the establishment"*.

Though most of the topics tackled by ESENER-2 have already been subject of ESENER-1, the questionnaire for ESENER-2 differs in almost all questions from ESENER-1. **There are no trend questions allowing for a direct comparability of results from both survey waves.**

1.3 Overview over the documentation available on ESENER-2

This **"Technical Report" is the main source of technical information on the ESENER-2 survey**. It provides detailed descriptions on central steps in the preparation and execution of fieldwork for the main survey. In addition, the Technical Report contains short summaries on the pre-testing done for ESENER-2 and on the translation process. These steps are dealt with more in detail in a number of further reports:

- Pre-test Report (cognitive pre-testing)
- Pilot Survey Report
- Translation Report

In addition to the Technical Report, a Quality Report is available. The Quality Report analyses different aspects of possible survey error and other quality aspects, hereby using Eurostat's *"ESS Standard for Quality Reports"* (Eurostat Luxembourg, 2009). The Quality Report is not based on any external evaluation of the survey.

For users that are looking for some quick orientation on the survey and the data-set, an executive summary of the Technical Report is available.

2 Survey Organisation

2.1 Responsibilities

On the contractor's side, the **overall coordination** of the survey was with **TNS Infratest Sozialforschung in Munich**, an operative unit of the TNS Deutschland GmbH. While TNS Infratest Sozialforschung holds the overall responsibility for the project, it cooperated with a number of further institutes in several steps of the preparation and fieldwork phase:

- In the **questionnaire preparation and pre-test phase**, experts from health and safety research institutions from three countries supported EU-OSHA and TNS Infratest Sozialforschung in the preparation of the questionnaire and in the cognitive pre-testing (see Chapter 3.1 for more details on the expert group).

- For the **elaboration of national questionnaire versions**, TNS Infratest Sozialforschung cooperated with **cApStAn Linguistic Quality Control** in Brussels, an institute specialized in the translation and verification of national questionnaire versions for large-scale social survey projects.

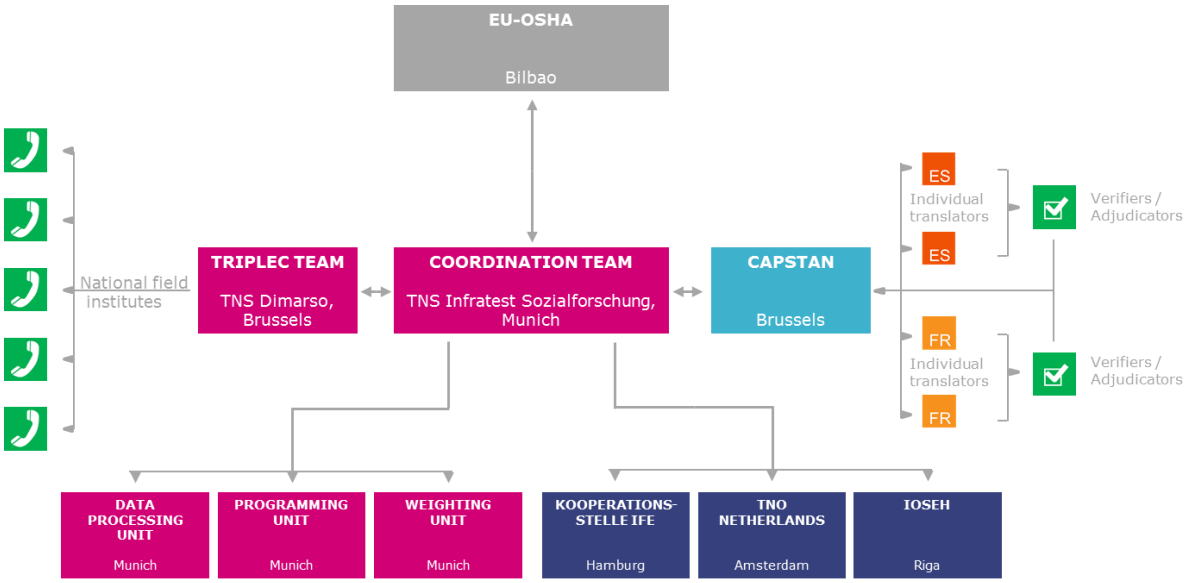
- On a day-to-day basis, **fieldwork was coordinated by the TNS TripleC team** located in Brussels. This team is specialized in the coordination of fieldwork for multi-country telephone surveys. TripleC hereby stands for "**Connected Call Centre**", a technology linking local CATI studios to a central server on which all national language questionnaire versions are made available and where all data – including para-data and contact information - are centrally stored. Data-management and the international fieldwork monitoring were totally centralized while interviewing itself was done and supervised by local teams from partner institutes located in the respective countries.

- **Except of Turkey, all countries used the TripleC platform** for the main survey. The organisation of interviewer schedules was made in cooperation between the local institutes and the TripleC team.[1]

- **Sampling** was done **centrally** by the central statistical unit of TNS in London, in close cooperation with the team at TNS Infratest in Munich which set the rules for the sampling and supervised the process.

[1] As for Turkey, it was agreed with EU-OSHA to run ESENER-2 outside the TripleC system. The main reason for this was capacity limitations: the number of TripleC workplaces installed at the Turkish fieldwork centre would not have been sufficient to carry out the survey within the given time-frame on this system, particularly in view of the difficult sampling situation the country is facing and in view of business closures of many Turkish enterprises during the summer vacation period. The Turkish fieldwork partner did however use the same centrally programmed NIPO Odin script as all the other countries and reported fieldwork progress to the TripleC coordination team, on the same templates as the countries using the TripleC system.

Figure 1: Institutes involved in ESENER-2 and sharing of work between them



2.2 Local fieldwork institutes

Fieldwork itself was carried out locally, in cooperation with the following national fieldwork institutes:

Table 1: Local fieldwork institutes in charge of fieldwork for ESENER-2

Country	Agency
AL	Be Research
AT	TNS Info Research Austria
BE	TNS Dimarso
BG	Balkan British Social Surveys AD (TNS BBSS)
CH	Léger Schweiz
CY	CYMAR Market Research Ltd
CZ	TNS AISA, s.r.o.
DE	Infratel
DK	TNS Gallup
EE	TNS Emor
EL	TNS ICAP
ES	TNS Investigación de Mercados y Opinión, SL.
FI	TNS Gallup Oy
FR	TNS Sofres
HR	Hendal d.o.o.
HU	TNS Hoffmann
IE	Millward Brown
IS	Capacent

Country	Agency
IT	TNS Italia
LT	TNS LT
LU	TNS ILRES
LV	TNS Latvia
ME	TNS Medium Gallup
MK	TNS Brima (NIPO)
MT	Misco Malta
NL	TNS NIPO
NO	TNS Norway
PL	TNS Polska S.A.
PT	TNS Portugal
RO	TNS CSOP
RS	TNS Medium Gallup
SE	TNS SIFO AB
SI	RM Plus
SK	TNS Slovakia
TR	TNS Turkey
UK	TNS-BMRB

Among the local fieldwork partners for ESENER-2, 27 are part of the TNS network, two further institutes are affiliated to TNS. With most of the remaining 7 institutes, long-established experiences with cooperation in European-wide surveys (e.g. Eurobarometer and ESENER-1) exist.

3 Development of the survey instrument

3.1 Development of the master questionnaire

The questionnaire for ESENER-2 is based on the management version of the questionnaire that was used for the previous survey wave conducted in 2009 (ESENER-1 MM questionnaire). The ESENER-1 questionnaire has however been modified in almost all questions. Though for a few questions the revisions were only marginal, **questions cannot directly be compared between ESENER-1 and ESENER-2** since it was decided not to use any of the national language versions made for ESENER-1, but to elaborate all translations for ESENER-2 newly from the scratch.

The development of the ESENER-2 questionnaires was done in close cooperation between **EU-OSHA**, **TNS Infratest Sozialforschung** and a small group of experts in health and safety research from different countries:

- **IOSEH** institute at the Stradins University, Riga/Latvia
- **Kooperationsstelle IFE GmbH** Hamburg (KOOP), Germany
- **TNO Netherlands**, Hoofdorp/Netherlands.

The draft questionnaire version elaborated by this group and further refined in various meetings, telephone conferences and rounds of written comments was then subject to several steps of testing:

a) A **cognitive pre-test** carried out in 3 countries, with a total of 40 in-depth face-to-face interviews
b) A **translatability assessment** of the English master questionnaire version
c) A **pilot field test** with 50-70 pilot interviews in each country

The main aim of the **cognitive pre-test** carried out in August and September 2013 in Latvia, the Netherlands and Germany was to test the master questionnaire on content-related aspects. The cognitive pre-test was coordinated by TNS Infratest Sozialforschung. Interviews were conducted face-to-face by researchers of the questionnaire development group, including the team of TNS Infratest Sozialforschung. In this context, questions were checked for clarity and understandability. In addition, a number of cognitive questions aimed at testing whether the standardized questions were interpreted in the intended way by respondents from different countries and different types of organisations and whether they were relevant to them. The cognitive test led to a number of modifications to the questionnaire. The outline of the cognitive pre-test and its findings are documented in the Pre-test Report (1st Interim Report).

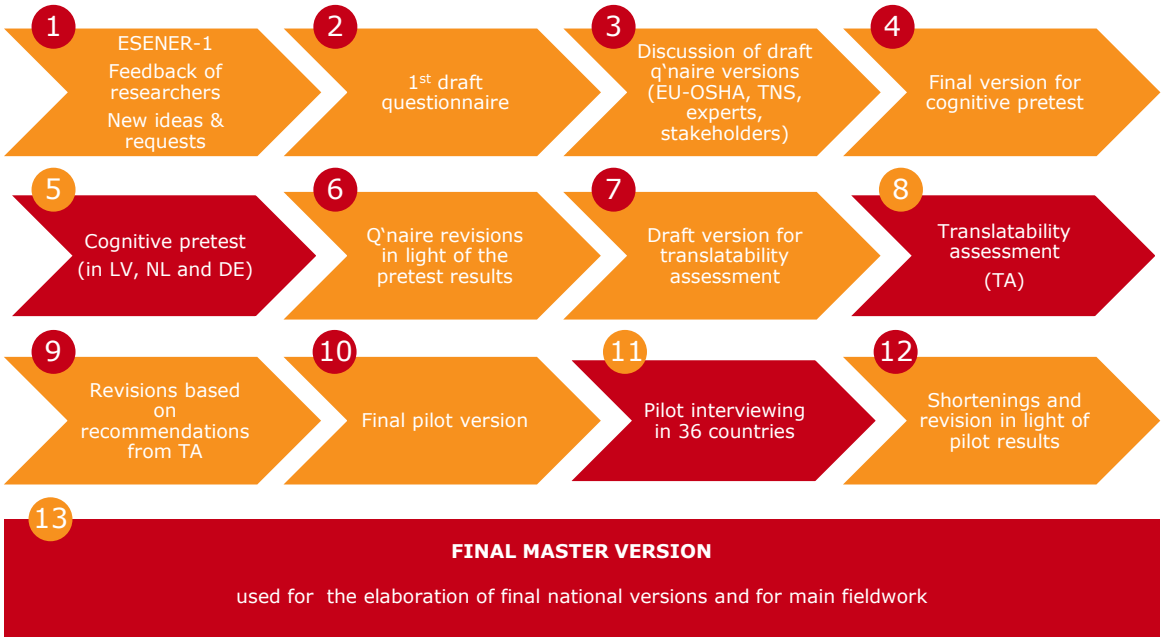
The questionnaire version resulting from the revisions done on base of the results from the cognitive pre-test was subsequently further refined. Once considered final, it was sent to cApStAn Linguistic Quality Control in Brussels, the institute in charge of translating the ESENER-2 master questionnaire into the various languages. There, a professional **translatability assessment** was done. In the course of the translatability assessment, experienced translators from four different language families elaborated rough translations of the draft master questionnaire in order to identify any ambiguities or other difficulties for translation. Where such difficulties were identified, translators made proposals for alternative formulations for the master version and the master version was revised accordingly.

As third testing step, a **pilot field test** was carried out in all 36 countries, with 50 to 70 interviews per country[2]. This pilot test was done in the CATI mode and used the same infrastructure as the later main survey. The aims of the pilot field test were manifold:

- Test of the success in obtaining access to the correct respondent
- Test of the screening procedure for countries where no establishment-level address register is available
- Check of the general understanding of the questions in the national language versions, by both interviewers and interviewees
- Technical tests of the programmed CATI and CAWI scripts and the entire data collection infrastructure
- Test of the CAWI interviewing option (usefulness, practical application, quality of results etc.)
- Test of the centralized fieldwork organisation and sampling for the survey
- Assessment of the usefulness of the interviewer instructions and support
- Check of the average interview duration for each national version

The pilot field test resulted in a number of changes to the master questionnaire and to the individual national questionnaire versions. Among these, there were several shortenings to the questionnaire since the interview duration turned out to be considerably too long. Due to the changes done to some of the questions, the 1.940 pilot interviews were not integrated to the main survey dataset, but were used for test purposes only.

Figure 2: Main steps of the questionnaire development process



[2] Countries using just one national language version of the questionnaire did 50 pilot interviews, countries using 2 or more language versions did 70 interviews.

3.2 Development of national language versions (translation process)

In the course of the questionnaire preparation phase EU-OSHA decided to have the entire questionnaire newly translated, not using any previous translations from ESENER-1.

For the translation process, TNS Infratest Sozialforschung made use of the services of cApStAn Linguistic Quality Control in Brussels, a linguistic institute specialized in the translation and verification of questionnaires.

The translation process consisted of several steps:

(1) **Elaboration of two independent translations by professional translators** (native speakers of the target language) who were not in contact with each other while producing their translation.
(2) **Review of the two translations by a so called adjudicator**, a particularly experienced further translator for the respective language. The adjudicator compared both translations and selected the best parts of each of them for a new, third version. In this process, questionnaire parts for which the adjudicator was unsure about the best choice were annotated.
(3) **Review meetings** in which the adjudicator and the two translators met in order to jointly discuss the best solution for the annotated text parts. In these "meetings" which were mostly held as web-based telephone conferences, there was also the chance to discuss any of the decisions made by the adjudicator.
(4) **Check of the adjudicated versions by experts from the Focal Point network of EU-OSHA.** After finalisation of the adjudication process, each national version was sent to a national OSH expert for checking. The national OSH experts were advised to focus their attention on all specific OSH terminology, including the questions related to bodies of employee representation in OSH matters (Q166).
(5) **Check and integration of the expert feedback.** In this step, the translators reviewed the comments of the experts and integrated them into the questionnaire where this was not already done by the expert.
(6) **Review of the documentation of the translation process:** As final step in the translation process, the coordination team at TNS Infratest Sozialforschung reviewed the (English language) comments made by the adjudicator and the national Focal Point experts, in order to ensure that all decisions and modifications are in line with the intentions of the master questionnaire.

In total, 47 different national language versions of the questionnaire were produced. For each of these language versions, an Excel file containing the full documentation of the translation process has been prepared. In addition, the final national questionnaires as used for fieldwork have been made available as more reader friendly pdf-versions based on WORD documents.

Table 2 provides an overview of all national versions produced for ESENER-2. For languages shared by two or more countries, different national versions were elaborated that took into account national peculiarities of the language and national differences in the OSH terminology. More details on the translation process can be found in the Translation Report.

Table 2: National language versions of the questionnaire

Country	Languages
AL	Albanian*
AT	German*
BE	Flemish(*), French*
BG	Bulgarian
CH	French*, German*, Italian*
CY	Greek*
CZ	Czech
DE	German*
DK	Danish
EE	Estonian, Russian*
EL	Greek*
ES	Spanish
FI	Finnish, Swedish*
FR	French*
HR	Croatian
HU	Hungarian
IE	English*
IS	Icelandic
IT	Italian*
LT	Lithuanian, Russian*
LU	French*, German*, Luxembourgish
LV	Latvian, Russian*
ME	Montenegrine
MK	Macedonian, Albanian*
MT	Maltese, English*
NL	Dutch
NO	Norwegian
PL	Polish
PT	Portuguese
RO	Romanian
RS	Serbian
SE	Swedish
SI	Slovene
SK	Slovak
TR	Turkish
UK	English*

*: Languages shared by two or more countries

Table 3 below shows how often the various language versions provided for the multi-lingual countries were finally used. The Swedish version for Sweden and the Russian version for Lithuania were used so rarely that it seems justifiable to drop these two language options for future surveys among organisations. On the other hand, some respondents from international companies in Montenegro and in Luxembourg had asked for an additional English language version[3].

Table 3: Usage of language versions

Country	Language version	Number of interviews	in %
AL	Albanian	750	100%
AT	German	1.503	100%
BE	Dutch	1.016	68%
	French	488	32%
	Total	1.504	100%
BG	Bulgarian	750	100%
CH	French	423	28%
	German	1.021	68%
	Italian	67	4%
	Total	1.511	100%
CY	Greek	751	100%
CZ	Czech	1.508	100%
DE	German	2.261	100%
DK	Danish	1.508	100%
EE	Estonian	693	92%
	Russian	57	8%
	Total	750	100%
EL	Greek	1.503	100%
ES	Spanish	3.162	100%
FI	Finnish	1.509	100%
	Swedish	2	0%
	Total	1.511	100%
FR	French	2.256	100%
HR	Croatian	751	100%
HU	Hungarian	1.514	100%
IE	English	750	100%
IS	Icelandic	757	100%

Country	Language version	Number of interviews	in %
IT	Italian	2.254	100%
LT	Lithuanian	769	99%
	Russian	5	1%
	Total	774	100%
LU	French	383	51%
	German	47	6%
	Luxembourgish	322	43%
	Total	752	100%
LV	Latvian	652	87%
	Russian	101	13%
	Total	753	100%
ME	Montenegrine	452	100%
MK	Macedonian	750	100%
MT	English	42	9%
	Maltese	410	91%
	Total	452	100%
NL	Dutch	1.519	100%
NO	Norwegian	1.513	100%
PL	Polish	2.257	100%
PT	Portuguese	1.513	100%
RO	Romanian	756	100%
RS	Serbian	752	100%
SE	Swedish	1.521	100%
SI	Slovenian	1.051	100%
SK	Slovak	750	100%
TR	Turkish	2.251	100%
UK	English	4.250	100%

[3] Due to the country specific terminology used e.g. in the questions on general and OSH-specific employee representation, it was not possible to use the English master version for individual requests from part of respondents. Part of the potential respondents asking for an English version in Luxembourg were able to answer the questionnaire in one of the available languages (Luxembourgish, French and German for Luxembourg and Montenegrine for Montenegro).

3.3 Programming

Programming for the ESENER-2 survey was **done centrally for all countries** at TNS Deutschland GmbH in Munich, using the NIPO ODIN software platform.

The first step in the programming process was to enter the WORD questionnaire into the Qlib format. From this format, the WORD questionnaires can be exported into an Excel format that can easily be used for the translation process. For each language version to be produced, a separate Excel sheet was made. This process was largely automatized so that it was guaranteed that all Excels have exactly the same structure and can thus easily be fed back into the questionnaire script after finalisation of all national language checks and revisions.

The master script was tested by the programmer and by the project team at TNS Infratest Sozialforschung. In addition to manual tests of all questions and filters, dummy data were fed into the program so that the output could be checked again for any eventually remaining filtering mistakes and for a correct storage of the data.

In the various national versions produced on base of the central script, all questions with any country specific filtering or country-specific terminology (e.g. Q166 on employee representation) were checked for the correct display of the texts.

Once the CATI script versions were finalized and tested, the CAWI versions were produced on their basis, using the same NIPO ODIN platform. For the CAWI version, interviewer hints were either deleted (where not relevant for a CAWI respondent) or formulated as direct hints to the respondent.

When the questionnaire programming and testing in Munich was finalised, the script was sent to the TripleC unit where it was implemented on the TripleC platform. At this stage, several adaptations had to be made in order to make the CATI script compatible with the TripleC sample management system. Also, the CAWI option had to be installed in the TripleC environment and linked with the CATI script in order to take over the email address information collected during the CATI contact.

4 Interviewers and supervisors: Selection and training

4.1 National interviewer teams

The national interviewer teams working on ESENER-2 were generally composed of the most experienced and successful b2b (= business to business) CATI interviewers. In some countries with large sample sizes and/or relatively small CATI studios with limited business in CATI b2b projects, nevertheless also some interviewers with a more limited record of b2b interviewing experience were included in the teams. All interviewers of this type have however previously collected experience in CATI interviews among individuals and were selected for ESENER-2 for their good performance on these surveys. Moreover, the national fieldwork partners established an exchange of good practices among the members of their teams, in particular between the more and the less experienced interviewers.

In the definition and selection of the interviewer teams, care was taken to have relatively small and stable teams working on the project. This helps to get a constantly good interviewing quality. The aim was to have each interviewer doing on average at least 50 ESENER-2 interviews. With few exceptions, this aim was achieved. Interviewers who turned out to be less successful with this particular project than anticipated were replaced during fieldwork in order to have the best possible teams working on the project.

On the other hand, it was also ensured that interviewer teams had a certain minimum size in order to minimize interviewer effects on the data. The smallest national teams of interviewers actually working on ESENER-2 consisted of 6 interviewers (Cyprus and Lithuania).

Table 4. Interviewer teams, by country

Country	Number of interviewers working on the project			Average number of interviews per interviewer	Average number of interviews per interviewer
	female	male	total	Base: CATI	Base: CATI & CAWI
AL	4	4	8	94	94
AT	22	10	32	46	47
BE	13	4	17	88	88
BG	13	0	13	57	58
CH	15	8	23	61	66
CY	6	0	6	123	125
CZ	20	2	22	63	69
DE	33	22	55	40	41
DK	8	8	16	89	94
EE	11	0	11	68	68
EL	14	4	18	83	84
ES	30	6	36	86	88
FI	6	2	8	184	189
FR	6	9	15	148	150
HR	9	2	11	65	67
HU	20	11	31	47	49
IE	9	10	19	38	39
IS	8	1	9	80	84
IT	26	9	35	64	64
LT	6	0	6	124	129
LU	10	3	13	54	58
LV	11	0	11	68	68
ME	16	1	17	26	27
MK	9	0	9	83	83
MT	7	0	7	62	65
NL	24	3	27	52	56
NO	13	2	15	95	101
PL	27	15	42	53	54
PT	11	7	18	82	84
RO	9	3	12	68	69
RS	16	0	16	46	47
SE	21	5	26	56	59
SI	8	2	10	104	105
SK	19	4	23	32	33
TR	52	21	73	31	31
UK	52	35	87	49	49
TOTAL	**584**	**213**	**797**	**72**	**75**

4.2 Preparation and initial training measures

All telephone interviewers working in the local CATI centers of TNS and the further partner institutes participating in ESENER-2 have received extensive initial training on basic issues of telephone interviewing, including methods to avoid refusals in surveys among organisations and other quality relevant aspects. This training is regularly being refreshed and amended by additional training on specific issues or particular projects. Thus, all interviewers working for ESENER-2 had a solid knowledge of CATI interviewing techniques.

For ESENER-2, additional project specific training was provided in order to prepare the interviewers for the specific challenges of this survey, including the demands regarding the achievement of a high response rate. This training was provided to interviewers in person by the local fieldwork managers and CATI supervisors. These were prepared to their role as "multipliers" for the interviewers in various ways:

- Before the launch of the pilot survey, local fieldwork managers were trained on the specific challenges of the ESENER-2 survey by way of **Webex training seminars** held by the project coordination team at TNS Infratest Sozialforschung in Munich. From each local fieldwork centre, at least one person participated in this webex training. The trainings lasted between 70 and 90 minutes, depending on the amount of questions and discussions.
- All local fieldwork managers and supervisors received a **written manual** on specific issues to be taken into account for the ESENER-2 interviews.
- **For interviewers**, a **paper handout** was prepared and provided in each **local language** used for the survey. This paper handout contained hints on issues such as the selection of the appropriate respondents, the differentiation between companies and establishments or further explanations on particular questions.
- Shortly before the launch of the main survey, local fieldwork managers and supervisors from all countries took part in a **2-day training seminar on ESENER-2**. The seminar took place in Munich on 30 June/1 July 2014. Topics dealt with in the seminar were e.g. further information on the client institution and on the aims of the survey, recommendations for an efficient survey organisation, techniques for the enhancement of cooperation rates, hints on particular questions etc.

The local ESENER-2 training sessions for the interviewers took place immediately before the launch of the survey. These trainings took between one hour and 4,5 hours whereby the large differences in the duration were largely owed to different local training cultures: While the trainings in all countries included the familiarization of interviewers with the programmed questionnaire and the chance to ask questions during and after that, in some countries also first attempts to do live interviews were made and analysed during this initial project specific training.

4.3 Control measures and further training measures

In each local fieldwork center, the supervisors in charge of the project did spot checks to at least 10% of all ESENER-2 interviews. To this end, they listened live to the contact phase and to running interviews. In case of incorrect interview behavior, interviewers received additional training. Supervisors also regularly checked the success rate of all interviewers on the project. Interviewers not performing well on this project were re-trained or removed from the project team.

Members of the EU-OSHA team also performed two fieldwork visits for control purposes – one on 18 July 2014 in Spain at the telephone studio of TNS Spain in Madrid and another one on 23 July 2014 in the United Kingdom at the CATI studio of TNS bmrb in Hull. The national clients of the sample boosts ordered for these countries also participated in these visits. Measures taken during these control visits were the listening in on running interviews and contact phases, conversations with supervisors and individual interviewers and the discussion of issues that became apparent during the visits.

The results from the two visits were communicated to the TNS Infratest team on 24 July 2014 and in reaction to this, a document for additional interviewer instructions was issued. This document was sent to all fieldwork partners on 28 July 2014 and was the base for an additional training session held by the local supervisors for their ESENER-2 interviewer teams. Most of the issues raised in this additional training had already been dealt with in the initial training, but seemed to require further emphasis. The issues dealt with in the additional training were:

- Interviewer behaviour in calls at subsidiaries that want to direct the call to the headquarters
- Hints on when to use code 56 (No adequate target person at the establishment)
- Advice to regularly repeat the main question text in longer item batteries in order to ensure that respondents don't get lost.
- Emphasis that in Q150 both internal and external experts are addressed and that for the external experts it is important that they are actually being contracted by the organization, mere awareness of their existence not being a justification for ticking "yes" in this question.

A further additional interviewer training instruction was sent to the fieldwork partners on 18 August 2014. The topics dealt with in this document were:

- Additional hints on Q113, the open-ended question asking for a description of the main activity of the organisation
- Emphasis on the importance of the 2nd interviews in screening countries and hints on how to be more successful in getting these

5 Sampling

5.1 Definition of the universe

ESENER-2 interviews were conducted in **establishments with 5 or more employees** from **all sectors of activity except for NACE Rev. 2 T** (Activities of households) **and NACE Rev. 2 U** (Activities of extraterritorial organisations and bodies). The survey covered establishments of all **different types of ownership** - private establishments as well as public institutions or non-profit organisations.

In this report the NACE sections O, P and Q are sometimes referred to as "Public and social services". This reference is related to all establishments in this sector, regardless of the ownership. Though in most countries NACE O (Public administration), P (Education) and Q (Human health and social work activities) are the sectors with the highest shares of public ownership, public entities can be found in a broad range of further sectors of activity. Information about the type of ownership (public vs. non-public) was collected from respondents within the questionnaire (Q114).

Table 5: NACE Rev. 2 sectors covered by ESENER-2

NACE Rev. 2 Section	NACE Rev. 2 Divisions	Description
A	01-03	Agriculture, forestry and fishing
B	05-09	Mining and quarrying
C	10-33	Manufacturing
D	35	Electricity, gas, steam and air conditioning supply
E	36-39	Water supply, sewerage, waste management and remediation activities
F	41-43	Construction
G	45-47	Wholesale and retail trade, repair of motor vehicles and motor cycles
H	49-53	Transportation and storage
I	55-56	Accomodation and food service activities
J	58-63	Information and communication
K	64-66	Financial and insurance activities
L	68	Real estate activities
M	69-75	Professional, scientific and technical activities
N	77-82	Administrative and support service activities
O	84	Public administration and defence, compulsory social security
P	85	Education
Q	86-88	Human health and social work activities
R	90-93	Arts, entertainment and recreation
S	94-96	Other service activities

5.2 Size of the universe

Official statistical figures on the size of the universe of establishments with 5 or more employees are available for some countries only. For many countries, in particular for most Eastern and Central European countries, the figures on the universe had to be estimated. The general principles applied for the estimates and the sources used for this are explained in Chapter 9.5.

All in all, the universe is estimated to comprise about **6,7 million establishments** and roughly **183 million employees** in the **36 countries** covered by the survey.

Taking only the currently **28 EU-countries** into consideration, the estimated size of the universe is ca. **5,7 million establishments** and ca. **162 million employees**.

Table 6: Universe of establishments and employees, by country

Country	Establishments with 5+ employees in NACE Rev.2 A-S (in '000)	Employees in establishments with 5+ employees in NACE Rev.2 A-S (in '000)
AL*	14	414
AT	134	3.308
BE*	111	3.553
BG*	75	2.324
CH	170	4.093
CY*	12	241
CZ*	103	3.667
DE	1.144	33.649
DK	87	2.281
EE*	19	515
EL*	85	1.830
ES	454	11.629
FI	68	1.872
FR	657	19.634
HR*	33	961
HU*	103	2.916
IE(*)	51	1.356
IS*	6	129
IT	674	13.615
LT*	42	1.054
LU*	12	369
LV	25	621
ME*	4	123
MK*	14	411
MT*	4	136
NL	178	5.749
NO	70	2.078
PL*	344	11.081
PT*	143	2.961
RO*	125	5.837
RS*	38	1.205
SE	140	3.831
SI*	20	653
SK*	62	1.711
TR*	611	12.524
UK	839	24.916
Total	6.670	183.246

**Countries with estimated universes*

5.3 Respondent definition and identification

The appropriate respondent for the ESENER-2 survey has been defined as **"the person who knows best about health and safety in the establishment"**. This definition is different from ESENER-1 where "the most senior manager who coordinates safety and health activities in this establishment" was targeted.

The motivation for modifying the definition of the target person was to get to the person who has the best knowledge about all health and safety issues, including details on risk assessment and other particular measures. Also, non-response resulting from the more restrictive definition of the respondent applied in ESENER-1 was meant to be reduced by this. The bigger diversity regarding the background of the respondents was considered as a tolerable drawback.

The function of the respondents can be analysed from Q100, a multi-punch question asking the respondents for a description of their function within the establishment and their tasks as regards the management of health and safety. In small establishments, most often the owners, managing directors or site managers answered the questionnaire personally (54,6% in size-class 5 to 9) while in large establishments most often a person specialised in health and safety tasks without any direct managerial function was interviewed (55,8% in size-class 250+). Table 7 shows the distribution of respondents by function in more detail. For an easier interpretation, the multi-punch related to this (Q100) was summarized into a single-punch question.

Table 7: Respondents by function (in summarized single-punch analysis, unweighted)

Function of the respondent and rule for the summary of the multi-punch question Q100_1 to _9 into single-punch categories		Size-class (Q105)				Total
		1 5-9	2 10-49	3 50-249	4 250+	
1 Owner of a firm, managing director, site manager *(Q100_1,2=1)*	n	7.133	7.666	1.760	255	16.814
	in %	54,6%	36,8%	16,6%	5,3%	34,1%
2 Manager without specific OSH tasks *(Q100_3=1 and Q100_1,2,4,5,6,7 not 1)*	n	1.940	4.107	2.252	694	8.993
	in %	14,9%	19,7%	21,2%	14,4%	18,2%
3 Manager with specific OSH tasks *(Q100_3=1 and Q100_4,5,6=1 and Q100_1,2,7 not 1)*	n	485	1.357	916	439	3.197
	in %	3,7%	6,5%	8,6%	9,1%	6,5%
4 OSH specialist without managerial function *(Q100_4,5=1 and Q100_1,2,3,6,7 not 1)*	n	1.037	3.468	3.651	2.685	10.841
	in %	7,9%	16,6%	34,4%	55,8%	22,0%
5 Employee representative in charge of OSH *(Q100_6=1 and Q100_1,2,3,4,5,7 not 1)*	n	2.312	3.962	1.922	694	8.890
	in %	17,7%	19,0%	18,1%	14,4%	18,0%
6 External OSH consultant *(Q100_7=1 and Q100_1,2,3,4,5,6 not 1)*	n	20	67	58	30	175
	in %	0,2%	0,3%	0,5%	0,6%	0,4%
9 No answer regarding the function *(Q100_9=1)*	n	133	202	64	11	410
	in %	1,0%	1,0%	0,6%	0,2%	0,8%
TOTAL	**n**	**13.060**	**20.829**	**10.623**	**4.808**	**49.320**
	in %	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

5.4 Sampling unit and statistical unit

Surveys can generally be carried out either at the level of companies/enterprises or at the level of the single establishments/local units. The choice between the company and the establishment level largely depends on the aim and subject of the survey. For an internationally comparable survey it is in any case important that the same level is chosen for interviewing in all countries.

For ESENER, both the **sampling unit and the statistical unit** (also called unit of enquiry or unit of analysis) for the survey were defined as **the "establishment" or "local unit"** rather than the enterprise or company. The establishment level has been considered as the more relevant level since this allows collecting information at the local level of the single workplace. In multi-site organisations, the situation at a particular local unit may be different from the situation in the headquarters or from the situation at other local units of the organisation, e.g. due to different types of work to be performed.

The term "establishment" was defined for the survey as *"a company/organisation or part of a company/organisation situated in one geographically identified place*[4]*."* The terms "establishment" and "local unit" are being used synonymously in this report. Likewise, the terms "company", "enterprise" or "organisation" are also used synonymously.

In terms of sampling, the main difference between a company/enterprise survey and a survey among establishments/local units is the coverage of subsidiaries: While a strictly company/enterprise-based sampling frame lists only one address for each company (usually the national headquarters), an establishment/local unit-based sampling frame additionally lists the addresses of all subsidiaries (in case of multi-site organisations).

For organisations consisting of only one production or service unit in the country (single-site organisations), the differentiation between establishment/local unit and enterprise/company is thus irrelevant, they are equally listed in both types of registers. But for all organisations that consist of more than one (legally dependent) unit in the country, the differentiation does matter: While in a genuine enterprise-based survey the headquarters would be surveyed and asked about the situation in the whole enterprise, in an establishment-based survey all units (the headquarters as well as the subsidiaries) ideally have an equal chance to be selected and interviewed

In interviews with multi-site organisations, care was taken to instruct respondents to actually refer their answers only to their local unit. To this aim, specific text elements were programmed that were shown for the units that had been identified earlier in the questionnaire (Q050/Q102) as parts of a multi-site organisation. In addition, interviewers were trained on the importance of a clear reference to the local unit throughout the questionnaire.

Experience does however show that the distinction between enterprise/company on the one hand and establishment/local unit on the other hand is not always easy for respondents. The differentiation is particularly difficult for entities of the public sector (e.g. schools or police stations) and in countries where there is no widely used term for "establishment".

[4] In practice, definitions used in the national address registers and in the statistical figures for local units may differ between countries. Differences may particularly appear with regard to the criterion whether a unit at a geographically different place is to be considered as a dependent part of an organisation or as an independent company/institution of its own.

5.5 Sampling principles

Samples for ESENER-2 were drawn in a multi-stratified random sampling procedure, using a sampling matrix with a sector and size differentiation to divide the universe into various cells (see subsequent chapter 3.2 for details on the shape and definition of the sampling matrix). For each cell of this matrix, targets were set as regards the number of interviews to be achieved.

For the sampling by size, a deliberately disproportional sample design was chosen. The definition of the targets by size reflects a mix of establishment- and employee-proportionality. A strict establishment-proportional design would result in only very few interviews in the largest size classes since most establishments within the defined universe are rather small. Within such a design, statistically robust analyses would hardly be possible for the largest size class(es). A strictly employee-proportional sample, in turn, would be hard to put into practice in view of the limited absolute number of large establishments. Moreover, it would lead to very high establishment-proportional weighting factors because only relatively few of the small establishments would be included in the sample. The mixture between establishment- and employee-proportionality keeps the weighting factors for the establishment- and employee-proportional weighting relatively homogenous.

In terms of sectors, the targets were set proportionally to the real structure of the universe, with the sole exceptions of the United Kingdom and Slovenia where selected sectors were deliberately over-represented in the national boost samples.

Within each cell of the applied sampling matrix, addresses were drawn at random from the selected address sources.

Though targets were set for each cell of the sampling matrix, this sample design is not to be mixed up with a (non-probability) quota sampling procedure. The strictly randomized selection of addresses from representative address sources within each cell of the sampling matrix classifies it as a probability sampling procedure with a disproportionate stratification.

5.6 The sampling matrix

For drawing and controlling the national samples, a 28-cell matrix was used in all countries, except for the United Kingdom where a finer matrix was applied[5]. The 28 cells of this matrix were defined by 4 size-classes and 7 sectors respectively sector groups.

[5] In the United Kingdom with its large sample boost, samples were drawn on base of a 100-cell matrix consisting of 25 sector differentiations and 4 size-classes which was also used to steer the sample in the fieldwork period.

Table 8: 28-cell sampling matrix used for ESENER-2

NACE Rev. 2 section(s)	NACE Rev. 2 division(s)	Sector group description	5 to 9 employees	10 to 49 employees	50 to 249 employees	250 or more employees
A	01-03	Agriculture, forestry and fishing				
C	10-33	Manufacturing				
B, D, E, F	05-09; 35-43	Construction, waste management, water and electricity supply				
G, H, I, R	45-56; 90-93	Trade, transport, food/ accomodation and recreation activities				
J, K, L, M, N, S	58-82; 94-96	IT, finance, real estate and other technical, scientific or personal service activities				
O	84	Public administration				
P, Q	85-88	Education, human health and social work activities				

The definition of the cells of this matrix was developed in close cooperation with EU-OSHA. Hereby, the following content-related and statistical aspects were taken into account:

- As far as possible, groups for which sampling difficulties were anticipated were handled as separate sector groups in the sampling matrix in order to be able to adequately control these subsamples when drawing the sample and monitoring fieldwork. Particular sampling difficulties were expected for NACE A, O, P and Q. While NACE A and O are generally difficult to sample due to their poor coverage or even non-coverage in many address registers, for NACE P and Q in some countries the non-coverage or under-representation of addresses for units in public ownership is the main difficulty.

- For the remaining sector groups, care was taken to summarize activities with a presumably similar OSH risk profile within a group:
  - B, D, E and F are characterized by many outdoor workplaces and workplaces at external sites (construction sites etc.)
  - J, K, L, M, N and S are sectors dominated by typical office workplaces
  - G, H, I and R are service activities in which a good part of the workplaces is not office-related, but often characterized by direct contact with end clients (shops, hotels, restaurants, transport services etc.)

5.7 Handling of the gross samples

In order to enhance response rates, it was agreed with EU-OSHA to limit the gross samples made available to the countries for fieldwork and to provide new samples only once the previously released sample was sufficiently exploited. The release of gross samples was administered centrally. This allowed a better control over the samples, particularly in countries where the local institutes have limited experience with high-quality b2b surveys.

In detail, the sampling process was organized in the following way:

Compilation of sampling frames

The acquisition of addresses for ESENER-2 was the task of each local fieldwork partner. Fieldwork partners were advised to select the best available address registers for this purpose. In case of any known weaknesses such as the non-coverage or clear under-coverage of certain segments of the universe, additional samples had to be acquired respectively compiled in order to get fully representative national samples.

These samples had then to be formatted in accordance with a template to be used uniformly by all countries. The formatted samples were sent to the central sampling unit at TNS in London where they were checked on several aspects such as the total number of addresses[6], the completeness in terms of the required information (existence of telephone numbers, NACE codes, size indications etc.) and the completeness in terms of sector and size coverage (were enough addresses provided for all cells of the sampling matrix?). National samples not complying with the provided template structures or samples not meeting any of the other criteria were sent back to the national institute for improvement or amendment.

The revised samples then were checked again by the central sampling unit. If acknowledged, the following sub-samples were then centrally issued for fieldwork:

- An initial sample with a ratio of 5:1 (5 gross addresses per 1 net interview), drawn separately for each cell of the sampling matrix. The ratio of 5:1 was agreed between EU-OSHA and TNS Infratest as a gross sample size that would allow for reasonably high response rates while at the same time ensuring that fieldwork would be completed within the envisaged time frame (10 weeks + 2 reserve weeks for the majority of countries; 14 weeks for countries with major sample boosts).
- Up to two reserve samples with the same size and structure (provided the availability of enough addresses).
- A residual sample with the remaining addresses.

Counts on the issued samples were sent to the central coordination team at TNS Infratest where they were compared to the structures of the universe of establishments or companies (in screening countries), respectively. In case of major deviations from the targeted structures, corrections to the gross samples were implemented.

The central sampling unit then sent the finalized samples to the TripleC centre where for each country the initial sample was uploaded for fieldwork.

Also, any additional samples were uploaded centrally by the TripleC team to have them immediately available when needed. New sample was released only after the previous sample had been exhausted as far as possible in order to put pressure on the national fieldwork partners to fully exploit all activated addresses. Major further sample releases were additionally agreed with EU-OSHA beforehand. All sample releases were documented.

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6 National fieldwork partners were free to define the absolute size of the sample they acquired, taking into account local experiences with the quality of the addresses from the chosen source and with response rates in this type of surveys. The central checks on the gross sample size were meant to ensure that for all countries sufficient sample units would be available to complete the survey in the desired stratification and without delay.

5.8 The screening procedure (for countries with a company-level sample source)

As explained in chapter 5.3, data for ESENER-2 had to be collected at the level of establishments (not companies/enterprises) in all countries involved. In many countries, address data-bases listing business addresses at the establishment level are not available. In order to get establishment-level interviews also for these countries, the **available company-based sampling frames were used and a screening procedure was applied** (see Table 9 for the concerned countries). In this screening procedure, interviewers first checked whether the contacted address belonged to a single-site or to a multi-site organisation (Q050). For any unit indicating to be part of a multi-site organisation, efforts were made to get an interview from the contacted unit (usually the headquarters) and an additional interview from one of the subsidiaries with 5 or more employees.

Table 9: Screening and non-screening countries[7]

Country	Necessity of screening on establishments/local units or on sector information		
	No screening	Establishment screening	Sector screening
AL		x	
AT		x	
BE		x	
BG		x	
CH	x		
CY		x	
CZ		x	
DE	x		
DK	x		
EE		x	
EL		x	
ES	x		
FI	x		
FR	x		
HR		x	
HU		x	x
IE	x		
IS		x	
IT	x		

Country	Necessity of screening on establishments/local units or on sector information		
	No screening	Establishment screening	Sector screening
LT		x	
LU	x		
LV		x	
ME		x	(x)
MK		x	
MT		x	
NL	x		
NO	x		
PL	x		
PT		x	
RO		x	
RS		x	
SE	x		
SI		x	
SK		x	
TR		x	x
UK	x		
TOTAL:	14	22	2 (3)

(x) applied to part of the sample only

This screening procedure deviated from the screening as applied to the former ESENER-1 survey of the year 2009[8]:

- In ESENER-1, respondents of multi-site organisations were not only asked about the number of local units within the relevant universe, but also about the size structure of these units (number of units within each size-class). Then, one of these local units was randomly selected for an interview. This could be either the headquarters or one of the subsidiaries.

7 In the countries with a sector screening, the available address sources did have either no or only a very unreliable indication on the sector of activity. These addresses had therefore additionally to be screened for the sector (Q030 to Q035).

8 The modification of the screening procedure was driven by practical considerations. The main aim was to get a good share of multi-site organisations in the net sample in order to reduce the differences between screening and non-screening countries as regards the share of interviews with multi-site units.

- In ESENER-2, respondents were asked to indicate only the total number of establishments/local units the organisation has within the defined universe, without further differentiation by size-classes. This detailed information was considered as too hard to obtain in a reliable form from the type of respondents targeted for ESENER-2.
  The further proceeding depended on the answer to this question:
  - If the total number of establishments within the defined universe was "1", then this one unit with 5 or more employees was interviewed.
  - If the total number was "2", then the contacted unit (usually the headquarters) was interviewed and efforts were made to get an additional interview from the other unit with 5 or more employees.
  - If the organisation had more than 2 units within the defined universe, then the contacted unit plus another, randomly selected second unit of the same organisation were interviewed (if possible).
  - A specific case was interviews where the firstly contacted address turned out to have less than 5 employees, but indicated that one or more other units surpass this size threshold. In these constellations, interviewers did not conduct an interview at this unit but asked only for the address(es) of one or two units (if existent) of the organisation that have 5 or more employees.

The respondents of the interviews made at the firstly contacted address were asked to provide the name, location and ideally also the address details and a contact person for the additionally selected unit with 5 or more employees. The addresses of these units were taken up during the interview or in a separate later call. They were then immediately made available to the local fieldwork institutes and were prioritized in the sample management system in order to enhance the share of such "second interviews".

All in all, 376 second interviews have been carried out in the screening countries. In a considerable number of the multi-site organisations, a second interview could not be conducted. A main reason was that persons who answered the first interview did often not feel in the position to provide the address and thus some kind of implicit allowance for the second interview. Especially in larger organisations, respondents were usually not high ranking managers, but rather OSH specialists with no specific disciplinary power. In order to maximize the number of addresses provided for the 2nd interview, the questions asking for the address was asked twice in many cases:

- All respondents from multi-site organisations with more than one unit with 5+ employees were asked to provide the address of that unit in the screening part of the interview and thus still before the interview conducted with themselves.
- Respondents who at this point indicated that they want to answer the interview first before deciding on a second interview received the question about the address of the subsidiary again at the very end of the interview.

All in all, 3.151 of the 49.320 interviewed enterprises were multi-sites and asked to provide a second address. When being first asked about this (before the main interview), 744 (24%) actually provided the address, 974 (31%) refused to provide it and 1.433 (45%) wanted to decide on this later again, at the end of the interview. Of these 1.433 organisations, finally 422 provided an address in the end while 1011 (71%) refused then. In sum, thus 744 + 422 = 1.166 multi-site enterprises provided an address. Hereof, 22 were totally unusable. On the other hand, a few enterprises for which no interview from the first contact is available because of not surpassing the 5 employee

threshold provided one or two addresses of subsidiaries with 5 or more employees. In the end, thus 1.240 addresses were available for trying to get interviews in subsidiaries.

Among these, 229 (18,5%) could finally not be used anymore because the respective cell was already full[9]. Another frequent reason for non-response in the provided 2nd and 3rd addresses was that nobody at the subsidiary felt in a position to answer the survey (Reason 56 "No adequate target person at the establishment"). A relatively high number of the provided addresses also turned out to be wrong, though efforts were made to investigate the correct addresses in these cases.

Table 10: Non-response reasons for the 2nd and 3rd interviews (screening countries only)

Response code	Number of addresses	in %
1 No answer	46	3,7%
2 Answer device	4	0,3%
3 Busy	8	0,6%
4 Information tone - Fax - Modem	40	3,2%
5 Wrong telephone number	65	5,2%
6 general appointment	28	2,3%
7 Definitive appointment with target person	8	0,6%
8 Refusal by target person	79	6,4%
9 Refusal by contact person/reception (upfront refusal)	10	0,8%
13 No establishment at this address (private household etc.)	6	0,5%
14 Inactive establishment, terminated	1	0,1%
17 Already questioned (double address)	85	6,9%
18 Complete telephone interview	**375**	**30,2%**
20 System error	6	0,5%
21 Stratification maximum reached (cell full)	229	18,5%
34 Refusal - add number to DO NOT CALL LIST	9	0,7%
36 Partial interview, not to call back	4	0,3%
37 No appointment with target person possible during fieldwork time and period	13	1,0%
41 Refusal also of online interview	30	2,4%
42 Size out of target (less than 5 employees or NA in Q105)	26	2,1%
48 Online questionnaire sent (still open)	55	4,4%
52 Completed online interview received	**1**	**0,1%**
53 Incomplete online interview received	1	0,1%
56 No adequate target person at the establishment	111	9,0%
TOTAL:	**1.240**	**99,9%**

In the data-set, interviews at the firstly contacted address are classified with code "1" in the variable "Adr_scrint". Interviews made at the additional address named during that first contact re-

[9] In the course of fieldwork, it was discussed whether in order to enhance the share of second interviews in the net sample, these should still be allowed in cells that were already closed. This measure was however discarded in favor of better size and sector structures.

ceived the code "2". In the specific case that the unit at the firstly contacted address had less than 5 employees, the (up to) two additional interviews were labelled with "2" respectively "3". For interviews with multi-site organisations that have a code "3", there is no record with code "1" because with this first address no interview was carried out.

As the table below shows, the share between multi-site and single-site organisations in the net sample is relatively homogeneous over most countries. In the screening countries, the share of multi-site organisations and particularly subsidiaries however tends to be lower than in the non-screening countries. This cannot be avoided when applying the screening procedure: In an establishment-based address register (as available in the non-screening countries), all subsidiaries of a multi-site organisation are listed. In some cases, this can be several hundred subsidiaries. In the screening countries, in turn, maximum two interviews per multi-site organisation are in the net sample. The share of subsidiaries is thus inevitably lower than for countries with a genuine establishment-level sampling frame.

Table 11: Interviews in multi- and single-site organisations, by country, unweighted

Country		Single-site organisation	Multi-site organisation	Hereof headquarters	Hereof subsidiaries	NA/DK type of multi-site org.
1 al	n	742	8	4	4	0
	in %	99%	1%	50%	50%	0%
2 at	n	1041	458	314	139	5
	in %	69%	30%	69%	30%	1%
3 be	n	995	500	293	199	8
	in %	66%	33%	59%	40%	2%
4 bg	n	611	138	98	39	1
	in %	81%	18%	71%	28%	1%
5 ch	n	1074	436	323	110	3
	in %	71%	29%	74%	25%	1%
6 cy	n	628	123	66	55	2
	in %	84%	16%	54%	45%	2%
7 cz	n	1221	285	204	71	10
	in %	81%	19%	72%	25%	4%
8 de	n	1111	1147	577	560	10
	in %	49%	51%	50%	49%	1%
9 dk	n	901	587	294	282	11
	in %	60%	39%	50%	48%	2%
10 ee	n	659	90	48	42	0
	in %	88%	12%	53%	47%	0%
11 el	n	1132	369	254	115	0
	in %	75%	25%	69%	31%	0%
12 es	n	1752	1403	859	539	5
	in %	55%	44%	61%	38%	0%
13 fi	n	854	657	459	190	8
	in %	57%	43%	70%	29%	1%
14 fr	n	1174	1069	277	767	25
	in %	52%	47%	26%	72%	2%
15 hr	n	641	110	94	16	0
	in %	85%	15%	85%	15%	0%
16 hu	n	1341	171	108	63	0
	in %	89%	11%	63%	37%	0%
17 ie	n	443	305	160	143	2
	in %	59%	41%	52%	47%	1%
18 is	n	575	182	136	45	1
	in %	76%	24%	75%	25%	1%
19 it	n	1545	704	602	98	4
	in %	69%	31%	86%	14%	1%
20 lt	n	715	57	37	19	1
	in %	92%	7%	65%	33%	2%
21 lu	n	546	203	103	100	0
	in %	73%	27%	51%	49%	0%
22 lv	n	671	82	58	23	1
	in %	89%	11%	71%	28%	1%
23 me	n	384	68	51	17	0
	in %	85%	15%	75%	25%	0%
24 mk	n	583	167	108	58	1
	in %	78%	22%	65%	35%	1%
25 mt	n	397	55	32	22	1
	in %	88%	12%	58%	40%	2%
26 nl	n	869	648	296	330	22
	in %	57%	43%	46%	51%	3%
27 no	n	869	626	181	435	10
	in %	57%	41%	29%	69%	2%
28 pl	n	1620	517	366	145	6
	in %	72%	23%	71%	28%	1%
29 pt	n	1062	447	329	115	3
	in %	70%	30%	74%	26%	1%
30 ro	n	668	83	59	22	2
	in %	88%	11%	71%	27%	2%
31 rs	n	612	138	112	26	0
	in %	81%	18%	81%	19%	0%
32 se	n	686	832	314	513	5
	in %	45%	55%	38%	62%	1%
33 si	n	862	189	172	17	0
	in %	82%	18%	91%	9%	0%
34 sk	n	698	50	32	16	2
	in %	93%	7%	64%	32%	4%
35 tr	n	1921	323	206	114	3
	in %	85%	14%	64%	35%	1%
36 uk	n	2174	2061	516	1523	22
	in %	51%	48%	25%	74%	1%
TOTAL	**n**	**33.777**	**15.288**	**8.142**	**6.972**	**174**
	in %	**68%**	**31%**	**53%**	**46%**	**1%**

6 The sampling frames used for ESENER-2 – documentation and assessment

6.1 Quality of the sampling frames

One of the big challenges for cross-national surveys among establishments is the lack of a harmonized, high quality sampling frame for all countries. Though some private address providers such as Dun & Bradstreet or Bureau van Dijk offer sampling frames for the majority of European countries, these are mostly not available for the level of establishments, but only for companies. Moreover, according to our experience, the quality of the frames from one and the same provider may vary considerably between countries. Also, most commercial providers (including those offering EU-wide samples) share certain shortcomings with regard to the coverage by size and sector: While privately owned middle- and large-sized enterprises are usually covered well, there are coverage deficiencies in the public and social services sector (particularly in NACE O, but also in P and Q) and in the smaller enterprises.

Due to this lack of a harmonized sampling frame that can be used for all or most of the countries involved in the survey, in each country the best available address register was selected. The selection was made by the local fieldwork partners. In this selection, the experiences made with the sampling frames used for previous European high-quality surveys (ESENER-1, ECS 2009, CEDEFOP pilot survey 2011) were used as starting point[10]. In countries where one single register covering all sectors of the ESENER-2 universe was not available, one or more additional address bases had to be used.

The selection of address data bases by each local fieldwork partner helped to get the best sources available at the national level. Nevertheless, the quality of the available address registers varies considerably between countries in terms of up-to-datedness, accuracy and coverage.

Generally, it can be observed that the most widespread flaws are related to the coverage of small establishments/companies and the coverage of some particular sectors of activity (mainly NACE A, K, O, P, and Q).

6.1.1 Coverage of NACE A (agriculture, fishing and forestry)

NACE A is rarely included in any survey among organisations so that practical survey experiences with this sector are limited. In the preparation phase for ESENER-2, it turned out that a number of the available address registers do not or do only partially cover this sector. Therefore, sometimes additional address sources had to be used for this sector (see Table 15 for details).

Another difficulty with this sector is the availability of statistics as needed for setting the targets for the sector (and for the later weighting): Reliable and coherent statistical information on NACE A is

[10] Many of the local partners doing fieldwork for ESENER-2 had previously also participated in one or several of these further cross-national surveys coordinated by TNS Infratest.

hard to get. In some countries, the official company or establishment statistics exclude this sector. In others, the sector is included but shows considerable differences to the figures from other sources, especially as regards the number of employees working in the agricultural sector in total and by company/establishment[11]. The differences mainly originate from different ways of counting employees. The seasonal character of much of the work to be done in the sector, the large share of employees from other countries working in agriculture and the high share of non-permanent and other "non-standard" working contracts makes it difficult to exactly determine the number of employees in the sector.

For reasons of consistency, for ESENER-2 we used the official figures in the establishment or company statistics that were also used as base for the other sectors though in a number of countries these might tend to under-estimate the size of the single establishments and the number of employees working in the sector. Where such statistics were not available for sector A, estimates were made (see Chapters 9.5 and 9.6 for more details).

6.1.2 Coverage of NACE O, P and Q (public and social services)

Other sectors presenting difficulties in the sampling process are NACE O (Public Administration), P (Education) and Q (Health and Social Work). These three sectors are characterized by a high share of public organisations, with NACE O being almost exclusively made up by institutions owned by the state.

A number of address sources does not cover sector O and includes sectors P and Q only as regards the privately owned entities within these sectors. Even the SBR (Statistical Business Register) compiled by Eurostat from the national offices does usually not include data on NACE O. Therefore in many countries additional address registers had to be used for the sampling of NACE O and for supplementing samples in NACE P and Q. The most frequently used additional sources were the Yellow Pages telephone registers, in some cases additional lists were compiled from internet sources such as the webpages of ministries etc. (see Table 15 for more details). These additional registers did often not provide any information on the number of employees so that a steering of the sample by size was more difficult than for other sectors where this information was available.

In several countries (e.g. most of the screening countries), also information on the universe of these three sectors was either lacking or incomplete. For the definition of the targets, therefore estimates on the size and structure of the universe had to be used (for more details see chapters 9.5 and 9.6).

Due to the difficulties of sampling NACE O, P and Q (and also NACE A), the overall sample quality for these sectors is likely to be somewhat lower than for the other sectors that are well covered in the address sources used as main base for the survey.

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[11] Other cross-national sources used for the verification of the statistical figures on sector A were agri-info (http://www.agri-info.eu/english/t_employment.php) and the Labour Force Survey. As for the latter, it has to be taken into account that the Labour Force Survey is conducted among the resident population only. Therefore, it normally will not include seasonal working migrants from other countries.

6.1.3 Coverage of small units (5-9 employees)

The main difference between ESENER-1 and ESENER-2 as regards the definition of the universe is the additional inclusion of establishments from size-class "5 to 9 employees" in the sample. The inclusion of these small units implies a number of challenges for sampling, weighting and fieldwork. The most important challenge with regard to the sampling frames is the under-coverage of small units in several of the address registers available for sampling. The reasons for this under-coverage are manifold:

- Among small units, the share of newly founded establishments is much higher than among larger ones since most new businesses start from a rather low size. It may take some time before these newly founded establishments are listed in the sources used by address providers for the compilation of their address data.

- Commercial address providers usually compile their address data among various sources, among them tax reports or other financial data about enterprises. In these sources, small enterprises with a small turnover are often not fully listed. This holds particularly for family owned businesses - these do not have the same reporting duties as companies with a shareholder ownership.

- While the number of larger businesses (especially with 250 or more employees) is very limited in most countries, the absolute number of smaller units in the universe is comparably large. Since many surveys do rather concentrate on the middle- and large-sized businesses, there is little need for commercial address providers to provide a full coverage of small units.

In spite of the relative under-coverage of small establishments or companies with 5 to 9 employees in many address sources, no additional sources had to be used for sampling units of that size. In some countries, the number of addresses available for this size-class from the main address provider selected for the country came however to a limit – particularly in view of the higher refusal rates observed in this segment.

6.1.4 Up-datedness of the registers

The up-datedness of an address register is an important criterion for the judgment on its quality. It can be assessed on base of different criteria. For the ESENER-2 samples, three aspects were checked (ex post) in this regard, on base of the data from the data set and the gross file:

(1) Age of the youngest establishments in the net sample

The ESENER-2 questionnaire contains a question asking about the year in which the establishment was founded (Q115/Q115x). If a national net sample does not include any recently founded establishment or if the share of newly founded establishments is very low, this can be interpreted as a hint on the out-datedness of the address register used for sampling. The analysis of ESENER-2 with regard to this criterion shows:

- In the broad majority of countries (27 of the 36 countries participating in the survey), there is at least one establishment founded in 2014 (the year of fieldwork for ESENER-2) in the net sample.
- In 7 countries, the youngest interviewed establishment(s) date(s) from 2013 (BG, CH, EE, FI, FR, LU, RS).
- In 2 countries, the youngest interviewed establishments were founded in 2012 (RO, SK).

Address sources with establishments dating from 2013 can still be considered as very up-to-date because the lack of an interview from a unit founded in 2014 might just be coincidence in view of the low number of establishments founded in the first few months of that year (national fieldwork partners were advised to buy their entire samples before the launch of the pilot survey in spring 2014).

(2) Share of relatively young establishments within the net sample

The share of more recent establishments in the net sample is an indicator that turns out to be difficult to interpret because the business demography varies largely between countries. While in some countries, many establishments are being newly founded (and maybe also die) within one year, in others the situation is more static. This is probably a major reason for the large country differences regarding the share of interviews with establishments founded in the last 2,5 years before the survey (after the year 2010): Rates vary from just 0,9% in Finland and Norway to as much as 12,2% in Lithuania, 11,5% in Montenegro and 9,8% in Albania. Most countries with a very high rate of newly founded establishments are non-EU countries (Montenegro, Albania, Turkey) or newer EU member states (Lithuania, Latvia, Estonia). In several of the Western European and Scandinavian countries (FI, NO, DE, BE and NL), the share of interviews with newly founded establishments is in turn low although the address sources used there can be considered as rather well-updated according to the information from local fieldwork partners.

(3) Share/number of addresses from establishments that ceased to exist

One of the non-response reasons available to interviewers in ESENER-2 was code 14 *"inactive establishment, terminated"*. A high share of addresses from establishments that ceased to exist is a hint on an address-source that is not well maintained. But also here, other aspects such as a severe economic crisis affecting particular countries in the period between the last systematic update of the address register and survey fieldwork may have an influence on the measured rate. The countries with the highest rate of ceased establishments were Iceland (3,8% of all addresses "touched" for the survey) and Malta (3,7%), whereas the average rate was at just 1,2%.

Table 12: Indicators on the up-datedness of the address registers, by country

Country	Year of foundation of youngest establishment in the sample (Q115)	% establishments founded after 2010 (i.e. max. 3 years old) Q115gr	% establishments that ceased to exist (non-response code 14)
AL	2014	9,8%	0,8%
AT	2014	1,7%	0,8%
BE	2014	1,3%	0,3%
BG	2013	1,1%	1,0%
CH	2013	1,5%	1,3%
CY	2014	3,2%	1,5%
CZ	2014	2,3%	0,4%
DE	2014	1,0%	1,4%
DK	2014	2,2%	0,3%
EE	2013	4,3%	0,5%
EL	2014	2,7%	0,3%
ES	2014	2,7%	0,7%
FI	2013	0,9%	1,0%
FR	2013	1,2%	0,1%
HR	2014	1,3%	0,3%
HU	2014	3,6%	0,9%
IE	2014	1,2%	0,4%
IS	2014	3,9%	3,8%
IT	2014	1,4%	0,7%
LT	2014	12,2%	0,4%
LU	2014	4,0%	0,7%
LV	2013	6,5%	1,8%
ME	2014	11,5%	0,6%
MK	2014	2,8%	0,6%
MT	2014	2,1%	3,7%
NL	2014	1,6%	0,2%
NO	2014	0,9%	0,7%
PL	2014	2,6%	0,5%
PT	2014	1,4%	0,4%
RO	2012	1,5%	1,4%
RS	2013	2,6%	0,1%
SE	2014	4,4%	0,9%
SI	2014	2,2%	0,4%
SK	2012	1,6%	0,3%
TR	2014	6,8%	0,7%
UK	2014	3,1%	1,0%
ALL		2,8%	1,2%

6.1.5 Inoperative telephone numbers in the registers

A further criterion allowing a certain judgment on the quality of an address frame (for the purpose of a telephone survey) is the number or share of addresses delivered with a wrong or outdated telephone number. Among the non-response codes recorded for ESENER-2, two can clearly be attributed to this category:

- Non-response code 5: Wrong telephone number
- Non-response code 4: Information tone, fax or modem

Reasons for a high share of such numbers in the register can be a general lack of care when compiling the register or insufficient maintenance (lack of updates on telephone numbers, feedback of address users on wrong numbers not used for a cleaning of the files etc.).

Summing up the observations for both non-response codes[12], it becomes obvious that it is mostly in some Central and Eastern European states (including the non-EU countries in the South East) where high quality registers are not (yet) available: Montenegro, Turkey, Slovakia and Macedonia were the countries with the highest share of addresses with inoperative telephone numbers, followed by Albania, Romania and Norway which also had high shares of such addresses.

[12] In the interpretation of Table 13, the focus should be on the sum of the shares from both non-response reasons rather than on any single one. For many addresses, more than one number was provided in the address register and if the telephone was not attended at the first one, then the second or third number was tried instead. Some of the additional numbers were fax numbers. The response code registers always the last response reason.

Table 13: Inoperative telephone numbers, by country

Country	Addresses used (1+ contact attempts)	% wrong telephone number (non-response code 5)	% Information tone - Fax - Modem (non-response code 4)	Sum inoperative telephone numbers
AL	3.038	23,4%	2,9%	26,3%
AT	8.265	5,2%	0,4%	5,6%
BE	6.498	2,9%	13,3%	16,2%
BG	4.058	13,8%	8,3%	22,1%
CH	9.880	4,6%	0,5%	5,1%
CY	7.236	19,3%	2,9%	22,2%
CZ	14.645	4,4%	9,3%	13,7%
DE	23.632	9,6%	1,8%	11,4%
DK	5.662	6,2%	6,0%	12,2%
EE	2.506	2,4%	5,3%	7,7%
EL	6.369	3,2%	11,2%	14,4%
ES	26.977	8,3%	9,2%	17,5%
FI	5.487	2,6%	0,1%	2,7%
FR	11.074	4,9%	5,2%	10,1%
HR	3.460	3,8%	5,7%	9,5%
HU	19.168	21,9%	0,8%	22,7%
IE	4.911	6,0%	0,4%	6,4%
IS	2.890	7,9%	1,1%	9,0%
IT	13.828	3,1%	19,1%	22,2%
LT	3.022	2,4%	3,0%	5,4%
LU	3.407	2,0%	3,0%	5,0%
LV	3.328	12,7%	1,2%	13,9%
ME	7.361	40,7%	6,2%	46,9%
MK	3.179	22,6%	6,7%	29,3%
MT	1.249	2,5%	0,0%	2,5%
NL	8.813	6,3%	6,0%	12,3%
NO	10.045	24,1%	1,4%	25,5%
PL	32.079	6,5%	4,1%	10,6%
PT	4.682	3,3%	4,2%	7,5%
RO	7.629	24,3%	1,7%	26,0%
RS	3.386	12,8%	3,3%	16,1%
SE	7.146	4,9%	2,5%	7,4%
SI	3.991	0,4%	1,2%	1,6%
SK	6.508	12,4%	21,4%	33,8%
TR	51.242	30,6%	5,5%	36,1%
UK	21.986	4,0%	0,1%	4,1%
ALL	358.637	12,5%	5,1%	17,6%

6.1.6 Accurateness of sector and size indications in the address databases

In any survey with a disproportionally stratified sample, the availability of sector and size information from the address source is of crucial importance. Otherwise, an efficient steering of the sample is not possible.

With the exception of Turkey, Hungary and (partly) Montenegro, sector information was available from the main sampling frames. Size information was also available from the main sampling frame, except in Turkey and Montenegro (though not always for the addresses drawn from additional sources such as the Yellow Pages). Analyses of the data-set and the gross data do however show that both the sector and the size information is not always reliable:

- In 28,5% of all addresses which resulted in an interview and for which size information was available from the register, this size information did not correspond to the size of the establishment as indicated in the questionnaire in Q105. For the screening countries (marked in grey in the respective column), a certain degree of size discrepancies is normal because the company registers on which there fieldwork is necessarily based indicate the total number of employees in the organisation, i.e. including all single units. But for most non-screening countries[13], the number of size switchers in some countries is surprising and explains to a large degree the partly relatively high numbers of addresses within non-response code 21 (stratification reached and called 1+ times).

- The NACE Rev.2 2-digit sector information provided in the addresses was considered as wrong by 15,6% of all respondents. After coding of the verbatims on the sector corrections (Q113), in about one third of these cases the NACE description provided by the respondent did however correspond to the description from the address register so that in the end, only 10,6% of the interviews received a different 2-digit code. This share further reduces to 7,9% if counting only those interviews as wrongly coded where the code on the 1-digit level (which is the finest level made available with the data) differed from the code as provided in the address register.

Reasons for the high shares of sector switchers in some countries (>10% in ME, ES, UK, IE, AL, CH) may be inaccurate or outdated information in the address register or differences between the sector classification system used in the address registers with the NACE codes (the Dun and Bradstreet register used in the United Kingdom is for example classified by SIC and not by NACE).

Another reason is differences between the logics of the address source and the understanding of the respondent with regard to the definition of "establishment/local unit" or the way how employees are counted[14].

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[13] In Spain, the register used for sampling is establishment based, but the information about the size-class always relates to the entire company/organisation. The situation there is thus similar to that in the screening countries.

[14] There are different ways on how to count employees, e.g. either as full-time equivalents or – as in the questionnaire – by counting each person as a full employee, regardless of the hours worked. Differences may also occur with regard to the types of employees to be considered: The size information on which the size-classes in the data-set are based refers to employees on the payroll only (Q105). Some address registers might also consider other types of workers.

Table 14: Sector and size switchers (differences between register and respondent information)

Country	Share of NACE codes considered as wrong by respondents (Q112 = 2)	Share of NACE codes finally attributed to another NACE Rev.2 2-digit sector	Share of NACE codes finally attributed to another NACE Rev.2 1-digit sector	Share of interviews with a switch in the size-class (Base: only interviews with size indication in the address source)
AL	20,7%	15,7%	11,3%	26,5%
AT	16,8%	12,6%	9,7%	24,7%
BE	16,0%	10,8%	8,9%	34,6%
BG	8,8%	7,3%	6,1%	19,0%
CH	24,2%	14,5%	11,1%	24,7%
CY	11,7%	7,6%	5,9%	31,2%
CZ	14,5%	11,1%	9,0%	27,1%
DE	18,0%	12,5%	8,8%	34,8%
DK	10,9%	6,6%	4,3%	24,9%
EE	4,4%	3,2%	1,6%	20,1%
EL	10,6%	7,6%	3,4%	27,1%
ES	23,1%	19,3%	15,3%	37,5%
FI	10,5%	6,3%	4,8%	28,5%
FR	12,5%	6,4%	3,8%	23,2%
HR	20,2%	9,3%	5,9%	21,2%
HU	n.a. (sector screening applied)	-	-	29,2%
IE	20,9%	16,4%	12,5%	28,3%
IS	11,1%	5,3%	3,2%	32,7%
IT	16,2%	9,8%	7,0%	25,2%
LT	15,2%	9,4%	7,4%	18,6%
LU	15,4%	9,3%	7,3%	24,1%
LV	7,0%	4,9%	2,9%	25,2%
ME	32,5%*	24,9%	18,8%	-
MK	6,8%	6,1%	5,1%	33,1%
MT	18,4%	11,3%	7,7%	33,2%
NL	18,3%	11,1%	9,2%	27,7%
NO	11,5%	7,3%	5,4%	24,9%
PL	13,0%	9,8%	8,4%	33,1%
PT	13,3%	6,0%	4,0%	22,3%
RO	7,9%	3,8%	3,0%	28,7%
RS	21,3%	10,6%	9,2%	21,4%
SE	11,8%	6,5%	5,0%	39,8%
SI	7,2%	4,3%	3,2%	18,0%
SK	14,7%	9,3%	7,5%	13,9%
TR	n.a. (sector screening applied)	-	-	-
UK	23,1%	18,6%	13,4%	33,9%
ALL	15,6%	10,6%	7,9%	28,5%

** Refers only to the addresses with a classification in the source*

Hint: Screening countries marked with grey background in the size column

6.2 Overview over the address registers used for sampling

The following overview shows the names of the address registers used for ESENER-2 and further information such as the up-datedness of the register, the level of entries (companies or establishments), its nature (commercial or official source) etc.

Table 15: Address registers used for ESENER-2, by country

Country	Name of the address register(s)	Level of entries	Update frequency	Last update (before extraction of sample)	Character of source	Additional sources needed/used for specific sectors	Number of addresses 5+ available from source; refers to main source only)
AL	Daxy Market Dun & Bradstreet	Companies/ enterprises	monthly	06/2014	commercial	Yellow Pages for sectors A, O, P and Q (no size classification available for these addresses)	not available
AT	Compass	Companies/ enterprises	monthly	03/2014	commercial	Herold	48.000 (47.000)
BE	Belfirst	Companies/ enterprises	twice per year	11/2013	commercial	no	164.000
BG	ICAP Bulgaria Daxy Market Bulgaria TNS BBSS (own sample)	Companies/ enterprises	monthly	2013	ICAP and Daxy Market: commercial TNS BBSS: from previous surveys	Yellow Pages for NACE OPQ (no size classification available for the addresses from this source)	not available
CH	AZ Direct and BUR (Establishment and company register of the Federal Statistical Office)	Establishments/ local units	constantly	04/2014	AZ Direct: commercial; BUR: official	no	AZ Direct: 81.500; BUR: full coverage
CY	Central Statistical Office: Registry of Companies 2011	Companies/ enterprises	Systematic updates only every few years	2011	official	Yellow Pages and internet sources used for compilation of address base for NACE A and O; smallest size-class for NACE O available as 0-9 employees only	9.500 (8.300)
CZ	Albertina	Companies/ enterprises	quarterly	02/2014	commercial	no	85.100 (74.800)
DE	Heins & Partner	Establishments/ local units	quarterly	03/2014	commercial	no	not available
DK	Experience (KOB)	Establishments/ local units	constantly (online updates)	06/2014	commercial	no	82.200 (63.800)
EE	Business register of Statistics Estonia	Companies/ enterprises	Constantly for addresses, once per yer for number of employees	2/2014; last update on employee number in 2012	official	Register of the constitutional institutions, local governments, government agencies, public institutions, other state agencies and other non-profit associations	13.700 (ca. 12.500)
EL	ICAP Database	Companies/ enterprises	once a year	2/2014	commercial	Yellow Pages for NACE OPQ (no size classification available for these addresses); Yellow Pages register dates from 2009	27.100 (27.100)
ES	Data Centric (Schober)	Establishments/ local units	monthly	3/2014	commercial	no	63.000 (63.000)
FI	Fonecta BtoB	Establishments/ local units	monthly	3/2014	commercial	no	39.200
FR	Cegedim	Establishments/ local units	monthly	4/2014	commercial (also provides official Sirene database)	no	578.000
HR	Bisnode d.o.o.	Companies/ enterprises	once a year	4/2014	official	Ministry of Public Administration (government websites) and additional request at Central Bureau of Statistics for NACE O and for size 50+ in NACE P and Q	not available
HU	KSH (central Statistical Office)	Companies/ enterprises	monthly	3/2014	official	Yellow Pages and government internet pages for addresses from NACE O, P, Q (no size classification available for these addresses)	185.000
IE	Bill Moss Bureau	Establishments/ local units	monthly	2/2014	commercial	no	not available

Country	Name of the address register(s)	Level of entries	Update frequency	Last update (before	Character of source	Additional sources needed/used for specific sectors	Number of addresses 5+ available from
IS	National registry and Credit Info	Companies/ enterprises	monthly	4/2014	both commercial and official	no	1.800
IT	Dun & Bradstreet	Establishments/ local units	monthly	3/2014	commercial	Additional addresses from public administration, public education and public health amended from Yellow Pages (under-represented in D & B database)	not available
LT	Creditinfo Lietuva	Companies/ enterprises	monthly	4/2014	commercial	no	34.000 (24.500)
LU	Editus (provider of Yellow Pages in Luxembourg)	Establishments/ local units	constantly by several channels	4/2014	commercial	A few addrsses for the education sector added from Yellow Pages (no size classification available for these addresses)	5.300
LV	Business register of the central statistical bureau of Latvia (CSB)	Companies/ enterprises	Monthly for NGOs, weekly for others	4/2014	official	no	24.900 (15.900)
ME	Central Business Registry of Montenegro (CRPS) Daxy Market Bulgaria	Companies/ enterprises	not known		CRPS: official Yellow Pages: commercial	Yellow Pages for NACE O, P and Q	not available
MK	Central Register of Companies in Macedonia	Companies/ enterprises	not known			Yellow Pages as additional source for sectors A, G, H, I, J, K, L, O, P, Q, R	not available
MT	National Statistics Office (NSO)	Companies/ enterprises	Systematic updates only every few years	2010 (latest available update)	official	no	1.900 (incl. size 1-4 because no separation between 1-4 and 5-9 available)
NL	Kamer van Koophandel (Chamber of Commerce)	Establishments/ local units	monthly		official	no	not available
NO	Bisnode Matchit	Establishments/ local units	twice per year	1/2014	commercial	no	69.900 (50.800)
PL	Polskie firmy	Establishments/ local units	at least once per month	3/2014	commercial	no	ca. 500.000
PT	Informa Dun & Bradstreet	Companies/ enterprises	daily	4/2014	commercial	no	98.000 (87.400)
RO	National Institute of Statistics: Business register	Companies/ enterprises	Systematic updates only every few years	2012	official	Yellow Pages for NACE A, K and O	74.000
RS	Serbian Business Register Agency	Companies/ enterprises	not known	not known	commercial	Yellow Pages (www.11811.rs) and official Government websites used for NACE O, P and Q	not available
SE	Bisnode	Establishments/ local units	weekly updates (from Bolagsverket and SCB)	5/2014	commercial, but based on official registers (Bolagsverket and SCB)	no	140.300 (137.200)
SI	iPiS Marketing Manager a Bisnode Solution, InfoBON d.o.o.	Companies/ enterprises	once a year	4/2014	commercial	no	14.600 (13.700 in size 5+; further 42.900 (12.400) without size classification
SK	Albertina and register of the statistical office (database for the survey was a synthesis of both sources)	Companies/ enterprises	quarterly for Albertina	03/2014	Albertina: commercial; register of stat. Office: official	no	19.400 in size 5+; additinal 8.000 without size classification
TR	TOBB (The Union of Chambers and Commodity Exchanges of Turkey), Chamber of Commerces of each province in Turkey; Yerelnet; others	Companies/ enterprises	not known			Ministry of Education list of schools; official registers; www.tobb.org.tr; www.rizetso.org.tr; www.adana-to.org.tr; www.tarimrehberi.gov.tr; www.kso.org.tr Dun & Bradstreet used as additional source for selected sectors, particularly for large companies	not available (different sources)
UK	DUN &Bradstreet	Establishments/ local units	daily			no	

6.3 Assessment of the sampling situation in each country

The following table shortly describes any particular sampling difficulties encountered in the sample preparation phase or when working with the sample during the fieldwork period.

Table 16: Summary of specific sampling challenges, by country

Country	Comments / Particular difficulties
AL	Difficult sampling situation since 82% of used addresses were without size classification; low number of contacts available from Dun & Bradstreet
AT	Compass contains a number of establishments/local units, but does not systematically cover this level of units; screening-procedure therefore applied
BE	No particular issues
BG	No particular issues; but youngest establishment interview in the data-set dates from 2012, so the regular updates of this sources might not be very systematic
CH	BUR provided only a limited number of addresses, not sufficient for the full survey; therefore usage of additional source after check for doublettes
CY	Last systematic update from the source was in 2011; due to recent economic crises affecting Cyprus, many of the listed companies had to close down or to downsize
CZ	No particular issues
DE	Official establishment register of the Federal Agency of Labour (Betriebsstättendatei) that was used for ESENER-1 is now hardly available any more for survey purposes (data protection restrictions)
DK	Partly deviating size-bands for number of employees
EE	Largest size-band is 100+; information about number of employees not very reliable (updated only once per year and not available for public organisations, NGOs and other non-profit organisations)
EL	Only few OPQ addresses in OPQ, amended by addresses from Yellow Pages
ES	Number of employees refers to the entire company in case of multi-site enterprises; many large companies therefore turned out to belong to smaller size-classes Addresses in public sector partly wrongly coded and generally less reliable than addresses of private establishments Relatively high share of sector codes not correct Low share of public entities among the addresses in NACE O, P and Q
FI	No particular issues
FR	Smallest size-band is 6-9 employees; in net sample establishments with just 5 employees are well represented nevertheless (only slight under-representation)
HR	Information on number of employees collected 1 year ago and thus partly outdated
HU	Indications on the sector of activity unreliable, often multiple sectors indicated; therefore additional sector screening applied
IE	No particular issues
IS	Indications on the number of employees incomplete and not very reliable
IT	No particular issues
LT	Some addresses without telephone numbers; numbers researched via internet
LU	No particular issues

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Country	Comments / Particular difficulties
LV	CSB provides 3 address registers, one for commercial enterprises, one for public sector institutions and one for NGOs; all 3 were used
ME	Very difficult sampling situation since no single source provided enough addresses; 84% of used addresses were without size classification, 72% without sector classification ==> for most addresses, both a size and sector screening was needed and for the drawing of the gross sample, a sample steering was mostly not possible No reliable information for the active companies, causing difficulties for fieldwork progress
MK	Address from Yellow Pages source to be used for many sectors due to non-coverage or under-coverage in register used as main source; addresses in Yellow Pages without size classification;
MT	Size-information rather outdated, smallest size-class 1 to 9 employees, thus many addresses in the smallest size-band turning out to be out of target
NL	No particular issues
NO	No particular issues
PL	Known weaknesses in the coverage of smaller establishments
PT	No particular issues
RO	No particular issues
RS	Information on size not very reliable and often not provided
SE	No particular issues
SI	Telephone numbers not always provided; research of numbers by internet and on Yellow Pages
SK	No particular issues
TR	Very difficult sampling situation; a mixture of various address sources had to be used; these were searched for doublettes in a semi-automated way; many addresses without size and/or sector classification The alternative would have been to draw a sample from Dun & Bradstreet which would have been much easier, but D & B covers only the most important companies in Turkey and is not representative; huge screening efforts (additional sector screening applied for all addresses)
UK	Sector classification available only with SIC codes; transformation into NACE necessary; transformed codes less accurate than a genuine NACE coding (high share of addresses where sector was considered wrong by respondents)

7 Fieldwork

7.1 Fieldwork period

In total, the fieldwork period lasted from 14 July 2014 to 20 October 2014. Part of this fieldwork period was available for some countries only.

In the original planning agreed at the launch of the project, fieldwork was foreseen to start on 28 July 2014 and to end on 3 October 2014 for all countries. The overall fieldwork period foreseen for the survey was thus 10 weeks, many of these in the summer vacation period.

This planning did not consider any national sample boosts since these were not known at that time. The large sample boosts ordered later for Spain and the United Kingdom required a prolongation of fieldwork. In order not to endanger the date for the finalisation of the project, the additional fieldwork days were partly planned in before the general launch of the survey and partly afterwards:

- Both Spain and the United Kingdom started fieldwork already on 14 July, i.e. 2 weeks earlier than the majority of countries. This was made possible by prioritizing the revisions of the national questionnaire and the programming and testing of the CATI scripts for these countries.

- After the end of the regular fieldwork period as foreseen for 3rd October 2014, for both countries extra two weeks of fieldwork were foreseen. This was planned to be compensated by an extra treatment of these countries in the data cleaning and weighting process.

Three further countries (Cyprus, France and Turkey) were also enabled to start the survey earlier than the majority of countries. For these countries, particular problems were anticipated due to total closures of companies during peak weeks of the summer holiday period (Cyprus, France and Turkey) or due to especially difficult sampling situations (Turkey).

Though a few additional countries needed some more days for fieldwork in the end in order to fill cells in difficult quota, on 17 October fieldwork could be finished in all countries except for Turkey. In Turkey, fieldwork took one working day longer and was finalized on 20 October.

Table 17: Fieldwork period, by country

Country	FW start	FW end
AL	06.08.	02.10.
AT	28.07.	23.09
BE	29.07.	25.09
BG	30.07.	01.10.
CH	28.07.	07.10.
CY	14.07.	07.10.
CZ	28.07.	30.09.
DE	28.07.	14.10.
DK	04.08.	01.10.
EE	05.08.	03.09.
ES	14.07.	17.10.
FI	28.07.	09.10.
FR	15.07.	03.10.
GR	28.07.	03.10.
HR	30.07.	01.10.
HU	28.07.	06.10.
IE	29.07.	09.10.
IS	28.07.	30.09.

Country	FW start	FW end
IT	28.07.	08.10.
LT	28.07.	26.09
LU	28.07.	24.09.
LV	28.07.	08.09.
ME	04.08.	03.10.
MK	29.07.	30.09.
MT	28.07.	08.10.
NL	28.07.	24.09.
NO	28.07.	08.10.
PL	28.07.	16.10.
PT	28.07.	07.10.
RO	28.07.	09.10.
RS	28.07.	02.10.
SE	05.08.	09.10.
SI	29.07.	16.09
SK	28.07.	02.10.
TR	18.07.	20.10.
UK	14.07.	16.10.

7.2 Management of the gross sample

The achievement of high response rates was set out as an important aim for ESENER-2. To this end, several measures were taken. One of these was the issuing of only a limited gross sample for each country. It was decided to start the survey with a gross sample of the ratio 5:1, i.e. of five times the expected net sample size. This magnitude was considered as a good compromise between the necessity to strive for high response rates on one hand and the practical restrictions of having to finalise fieldwork within the given time-frame of 10 weeks. Though this time frame was generally considered adequate for a survey of that size, it had to be taken into account that more than half of the available fieldwork period fell into the main summer holiday period where it is difficult and in some countries almost impossible to conduct fieldwork for a b2b survey.

In many countries, the originally issued main sample of the 5:1 ratio was not sufficient to complete the survey in time. Therefore, additional samples had to be issued. All additional sample releases had to be acknowledged by the coordination team at TNS Infratest in Munich. Major releases of new sample were additionally also agreed with EU-OSHA. Local institutes were advised to first exhaust the sample already in field as far as possible before requesting the release of additional gross sample. The release of new sample was granted only after exploitation of the existing sample, as far as possible[15] including recalls at the "soft appointments", i.e. addresses where a first contact

[15] It did for example not make sense to call soft appointments with a rough indication on a date for the callback (e.g.: "Call again in September, after the summer holidays".) before that indicated date.

had taken place and where the interviewer was generally allowed to call again. The additional sample releases were documented.

7.3 Targeted and achieved net sample size

The total targeted sample size for ESENER-2 was 49.100 interviews. Hereof, 3.200 interviews were made for sample boosts ordered by the national governments of Spain (900), Slovenia (300) and the United Kingdom (2.000) in order to enhance the statistical power of their national data and to thus facilitate more detailed and robust analyses.

Sample sizes for the single countries were roughly adapted to the size of the national economy. The sample sizes ordered by EU-OSHA ranged from 450 interviews in the smallest economies (Malta and Montenegro) to 2.250 interviews in the largest countries of the geographical area covered by the survey. Including the national sample boosts, the samples for Spain and the United Kingdom were even larger, with 3.150 interviews in Spain and 4.250 in the United Kingdom.

The targeted sample size was achieved in all countries. Even the very small countries that had to struggle hard to meet the overall targets (IS, MT, CY, ME) due to the limited size of their universe could finally deliver the requested number of interviews on time[16]. In a number of countries, additional interviews were delivered that go beyond the targets. The additional interviews sum up to n = 220 and mainly stem from online interviews that came in after finalisation of CATI fieldwork in the country or after the respective cell of the sampling matrix had been closed for CATI fieldwork due to completion in the meantime.

Overall, the **net sample size** amounts to **49.320 completed interviews**. Of these, 48.031 interviews were conducted by telephone (CATI) while 1.289 interviews (2,6% of the total number) were done online as CAWI interviews (for details on the CAWI interviews see chapter 8).

[1616] For these countries, a broader tolerance regarding the size and sector structure of the interviews was agreed with EU-OSHA since the priority was to achieve the targeted overall sample size.

Table 18: Targeted and achieved net sample sizes, by country

Country	Country code	Targeted net sample	Achieved net sample	Balance
Austria	AT	1.500	1.503	3
Belgium	BE	1.500	1.504	4
Bulgaria	BG	750	750	0
Croatia	HR	750	751	1
Cyprus	CY	750	751	1
Czech Republic	CZ	1.500	1.508	8
Denmark	DK	1.500	1.508	8
Estonia	EE	750	750	0
Finland	FI	1.500	1.511	11
France	FR	2.250	2.256	6
Germany	DE	2.250	2.261	11
Greece	EL	1.500	1.503	3
Hungary	HU	1.500	1.514	14
Ireland	IE	750	750	0
Italy	IT	2.250	2.254	4
Latvia	LV	750	753	3
Lithuania	LT	750	774	24
Luxembourg	LU	750	752	2
Malta	MT	450	452	2
Netherlands	NL	1.500	1.519	19
Poland	PL	2.250	2.257	7
Portugal	PT	1.500	1.513	13
Romania	RO	750	756	6
Slovakia	SK	750	750	0
Slovenia (incl. national boost of n = 300)	SI	1.050	1.051	1
Spain (incl. national boost of n = 900)	ES	3.150	3.162	12
Sweden	SE	1.500	1.521	21
United Kingdom (incl. national boost of n = 2.000)	UK	4.250	4.250	0
SUBTOTAL 1: EU-countries	**28 countries**	**40.400**	**40.584**	**184**
Albania	AL	750	750	0
Switzerland	CH	1.500	1.511	11
Iceland	IS	750	757	7
Montenegro	ME	450	452	2
FYROM (Macedonia)	MK	750	750	0
Norway	NO	1.500	1.513	13
Serbia	RS	750	752	2
Turkey	TR	2.250	2.251	1
SUBTOTAL 2: Non-EU countries	**8 countries**	**8.700**	**8.736**	**36**
TOTAL ALL COUNTRIES	**36 countries**	**49.100**	**49.320**	**220**

7.4 Interview duration

The CATI interviews were meant to take 25 minutes on average. The average duration measured for the survey was 24,22 minutes and was thus very close to the targeted duration.

As the table below shows, the duration varies considerably between countries, from ca. 19 minutes in Ireland, Macedonia and Albania to around 30 minutes in Finland and Malta. These country variations are partly due to language effects (some languages are shorter than others) and partly due to filtering effects (in countries where health and safety measures such as risk assessments are less widespread, interviews tend to be shorter).

Table 19: Measured average interview time, by country

Country	Mean duration (minutes)
al	19,18
at	24,19
be	26,18
bg	27,95
ch	28,39
cy	19,24
cz	26,03
de	25,86
dk	23,44
ee	23,87
el	23,52
es	24,79
fi	29,37
fr	26,44
hr	25,82
hu	22,22
ie	18,66
is	23,07
it	23,71

Country	Mean duration (minutes)
lt	23,34
lu	28,23
lv	28,20
me	22,01
mk	19,14
mt	30,59
nl	28,31
no	22,42
pl	24,35
pt	24,70
ro	23,36
rs	22,52
se	25,80
si	21,49
sk	21,06
tr	23,43
uk	21,13
ALL:	**24,22**

In the time measurements, only CATI interviews were taken into account. Outliers with more than 75 minutes interview duration were excluded from the measurement of the average. Likewise, interviews which were interrupted and completed at a later time or day were not counted since the time measurement is not reliable in such cases.

7.5 Size and sector structure of the net sample

Size and sector of activity are crucial characteristics for the analysis of survey data among organisations. In most countries, the address sources used for drawing the samples already contained information on the number of employees (size-class) and on the sector of activity for each listed address. This information was taken as base for drawing the gross samples, but respondents were asked to verify this information at the beginning of the interview:

- Question **Q105** asked for the **number of employees on the payroll** of the establishment. In case of multi-site organisations, respondents were explicitly advised to refer their answer to the number of employees in the local unit only.

- **Q112** asked respondents to **confirm the sector of activity** to which the establishment was attributed according to the information in the address register. If confirmed by the respondent, the sector attribution from the address register was used in the data-set.

- Respondents who did not confirm the sector attribution from the address source were in **Q113** asked to shortly **describe the main activity of their establishment** in their own words. These verbatim answers were later coded into NACE Rev.2 categories. In these cases, the coded answers of verbatims were used for the sector attribution within the data set. Exceptions to this are the interviews where the verbatim descriptions of respondents did not allow the clear attribution to one of the sectors. In these (few) cases, the sector indicated in the address source was used in the data-set in spite of the respondent's consideration of these as incorrect. More details on the sector coding process and coding results are set out in chapter 12.3.

For a few countries, sector and/or size-information was not available from the address source:

- For most addresses of the Turkish sample, neither sector nor size-class were available from the address source(s).
- For Hungary, the sample source often listed several sectors of activity per address, with no clear hint on which of these sectors would describe the main activity of the establishment best.
- For Montenegro, the addresses from the additional address source were not sufficient and an additional source had to be used. In this additional source, indications on sector and size were largely missing.

For these three countries, therefore an additional sector screening was introduced (questions Q030 to Q035). There, the NACE Rev. 2 sector was asked at the 1-digit level (and partly beyond that), using a multi-stage question design.

The table below shows the distribution of the completed interviews by size-classes and sectors of activity. Where the original sector from the address source was considered as wrong by the respondent, the table reflects the sector information given by the respondent.

Table 20: Structure of the net sample (all countries), by size and sector (unweighted)

NACE Rev.2 Division	Size size class (Q105)				TOTAL	in %
	1 5-9	2 10-49	3 50-249	4 250+		
1 A	444	450	150	23	**1.067**	2,2%
2 B	44	89	84	24	**241**	0,5%
3 C	1.687	3.238	2.317	1.480	**8.722**	17,7%
4 D	45	106	108	68	**327**	0,7%
5 E	75	247	199	63	**584**	1,2%
6 F	1.134	1.682	713	164	**3.693**	7,5%
7 G	3.495	4.184	1.214	330	**9.223**	18,7%
8 H	524	888	551	256	**2.219**	4,5%
9 I	741	1.112	382	86	**2.321**	4,7%
10 J	376	628	330	155	**1.489**	3,0%
11 K	262	359	253	187	**1.061**	2,2%
12 L	156	178	93	31	**458**	0,9%
13 M	1.028	1.265	483	183	**2.959**	6,0%
14 N	466	702	383	202	**1.753**	3,6%
15 O	401	1.198	910	606	**3.115**	6,3%
16 P	632	1.715	1.063	195	**3.605**	7,3%
17 Q	908	1.955	1.078	678	**4.619**	9,4%
18 R	225	390	162	40	**817**	1,7%
19 S	417	443	150	37	**1.047**	2,1%
TOTAL	**13.060**	**20.829**	**10.623**	**4.808**	**49.320**	100,0%
in %	26,5%	42,2%	21,5%	9,7%	100,0%	

There are some differences between the finally achieved sample structures and the originally targeted structures that go beyond the generally agreed tolerance of +/-10%. Mostly, these are due to sector and size differences in the response behaviour. In some cases, the main obstacle to fulfill the given quota was the availability of addresses for particular segments of the sampling matrix.

With its 28-cells, the matrix used for sampling and fieldwork monitoring was very complex and detailed for a cross-national survey involving so many countries (in total, 28*36=1.008 cells had to be monitored and steered during fieldwork). Though there are some larger discrepancies between targets and achieved samples in specific cells, the reached structures are overall quite close to the targets. The largest differences can be observed in the following segments:

- In many countries the targets for the smallest size-class (5 to 9 employees) could not be fully achieved. As shown in Chapter 7.6.4, the cooperation and response rate was considerably lower than in the larger size-classes. In a few countries, thus the number of addresses purchased for ESENER-2 was not sufficient to fulfill some of the sector quota within this size-class. As far as possible, additional addresses were provided for these segments in the course of fieldwork, but this was not always possible within the given time frame. Countries with larger difficulties

in meeting the targets for size-class 5-9 employees were: MT (41%[17]), PL (58%), LU (63%), TR (73%), CY (73%), DK (78%), HU (79%).

- In the largest size-classes, the picture is diverse. While overall, the number of interviews targeted for this size-class was even slightly over-achieved, a number of countries could not meet their targets. This mostly concerns screening countries. For these, it is much more difficult to fulfil the quota particularly for the largest size-classes because for all multi-site enterprises the indicated size refers to the entire organization with all its subsidiaries in the country. The countries with the largest discrepancies between the targeted and the achieved samples for size 250+ are ME (25%), AL (29%), BG (77%) and FI (79%). For ME and AL, the targets had turned out to be too high because for these countries, at the start of fieldwork no statistics on the universe were available and assumptions had to be made which were too high as regards the universe in size 250+.

- In terms of sectors, discrepancies between the targeted and the achieved number of interviews are much smaller, overall as well as in the majority of country samples. The sector that most often presented difficulties was NACE A (Agriculture, forestry and fishing). The difficulties for this sector were partly due to an under-representation of the sector in the address sources so that in a number of countries, there were not enough addresses available for the sector.

For the smallest of the countries participating in the survey (CY, LU, MT, IS), larger deviations from the targets than the general +/- 10% had been agreed from the beginning due to the limitations regarding the number and structure of available addresses. Here, the priority was on the achievement of the total sample size in view of the limited number of available addresses.

[17] The percentages refer to the target: 41% means for example that 41% of the interviews targeted for this particular segment (100%) were finally achieved.

Table 21: Targeted and achieved sample structures (sector attribution from address)

Targeted sample structures (36 countries)

Sector \\ size class	5-9	10-49	50-249	250+	Total
A	673	443	144	14	1.273
B,D,E,F	1.651	2.022	1.035	310	5.018
C	1.858	2.986	2.077	1.237	8.158
G,H,I,R	5.800	6.157	2.249	739	14.945
J,K,L,M,N,S	2.890	3.273	1.793	1.004	8.960
O	528	1.154	822	565	3.069
P,Q	1.641	3.476	1.872	835	7.824
Total	15.041	19.511	9.992	4.704	49.247

Achieved sample structures (36 countries, sector from address source)

Sector \\ size class	5-9	10-49	50-249	250+	Total
A	499	486	160	20	1.165
B,D,E,F	1.321	2.166	1.101	309	4.897
C	1.671	3.115	2.179	1.389	8.354
G,H,I,R	4.945	6.637	2.436	783	14.801
J,K,L,M,N,S	2.651	3.561	1.790	902	8.904
O	441	1.241	901	567	3.150
P,Q	1.532	3.623	2.056	838	8.049
Total	13.060	20.829	10.623	4.808	49.320

Difference between targeted and achieved structures (36 countries, abs.)

Sector \\ size class	5-9	10-49	50-249	250+	Total
A	-174	43	16	6	-108
B,D,E,F	-330	144	66	-1	-121
C	-187	129	102	152	196
G,H,I,R	-855	480	187	44	-144
J,K,L,M,N,S	-239	288	-3	-102	-56
O	-87	87	79	2	81
P,Q	-109	147	184	3	225
Total	-1.981	1.318	631	104	73

Difference between targeted and achieved structures (36 countries, in %)

Sector \\ size class	5-9	10-49	50-249	250+	Total
A	74%	110%	111%	143%	91%
B,D,E,F	80%	107%	106%	100%	98%
C	90%	104%	105%	112%	102%
G,H,I,R	85%	108%	108%	106%	99%
J,K,L,M,N,S	92%	109%	100%	90%	99%
O	84%	108%	110%	100%	103%
P,Q	93%	104%	110%	100%	103%
Total	87%	107%	106%	102%	100%

7.6 Fieldwork success in terms of cooperation, response and refusal rates

7.6.1 Mode of calculation of the various rates

The cooperation rates as shown in this chapter are calculated as total number of achieved interviews/number of eligible contacts. Hereby, response codes 6 - 9, 18, 20, 21, 34-37, 41, 47,48, 52 and 53 were considered as eligible (see Table 22 below for the description of the codes). Code 56 – "no adequate target person at the establishment" was not considered among the eligible contacts in this calculation.

The calculation is based on the assumption that all contacts that did not lead to an interview would have been eligible contacts. In reality, this is not the case because the successful contacts show that a number of addresses drop out of the universe at the beginning or during the interview for various reasons. Among all 358.637 addresses touched for the survey,

- 7.516 (2,1%) turned out to be private households (response code 13)
- 4.146 (1,2%) belonged to establishments that ceased to exist in the meantime (response code 14)
- 15.335 (4,3%) turned out to have less than 5 employees (response code 42)
- 176 were multi-site establishments that had no single site with more than 4 employees (response code 44, screening countries only) and
- 1.850 (0,5%) were address doublettes from establishments that had already been questioned (response code 17).

In total, thus 29.023 or 10,8% of all 268.346 addresses where somebody could be reached finally turned out to be not eligible for the survey.

In addition, it can be assumed that among the different types of refusals, some further establishments would drop out of the universe due to the size criterion (less than 5 employees) which is asked only during the interview (Q105), i.e. if a respondent agreed to participate in the survey. The share of addresses that during the interview turn out to be out of scope for that reason and thus as not eligible according to the AAPOR definition is 22,9%, calculated according to the following formula:

$$\frac{\textit{addresses with size out of target}}{\textit{completed int. + size out of target + no single establ. >4 + partial CATI int. + rejected CAWI int.}}.$$

For the 90.291 addresses that could not be reached (response codes 1 to 5), the eligibility could also not be confirmed.

Table 22: Definition of non-response and other calculated rates

Code	Description	Cooperation rate	Response rate	Contact rate	Refusal rate
		% completed interviews from eligible contacts	% completed interviews from all touched addresses	% "successful" contacts from all touched addresses	% Refusals from all touched addresses
1	No answer				
2	Answer device				
3	Busy				
4	Information tone - Fax - Modem				
5	Wrong telephone number				
6	Callback possible (general appointment)				
7	Definitive appointment with target person				
8	Refusal by target person				
9	Refusal by contact person/reception (upfront refusal)				
13	No establishment at this address (private household etc.)				
14	Inactive establishment, terminated				
17	Already questioned (double address)				
18	Complete telephone interview				
20	System error				
21	Stratification maximum reached (cell full); only addresses with at least 1 call effort				
34	Refusal - add number to DO NOT CALL LIST				
35	Partial interview, to be called back				
36	Partial interview, not to call back				
37	No appointment with target person possible during fieldwork time and period				
41	Refusal also of online interview				
42	Size out of target (less than 5 employees or NA in Q105)				
44	No single establishment with 5 or more employees (Q051=0)				
45	Size of first contact out of scope but interview possible at subsidiary (screening countries)				
47	Refusal to provide information in the screening phase				
48	Online questionaire sent (still open)				
52	Completed online interview received				
53	Incomplete online interview received				
56	No adequate target person at the establishment				

Base for the calculation of the rate (denominator)

Units counted in the calculation of the rate (enumerator)

7.6.2 (Non-) response by reason in the total gross sample

Table 23 below shows how the 358.637 addresses that were touched for the survey distribute over the various reasons of (non-)response. Behind the average rates shown in the right hand column, partly high country differences are concealed. Thus, for example 43,3% of all addresses with "No answer" and 34,8% of the addresses with code 5 "Wrong telephone number" are from one single country, namely Turkey. In most other countries, the absolute and relative figures for these non-response reasons are much lower.

Table 23: (Non-) response by reasons, all countries, absolute and in %

Response code	ALL (abs.)	ALL (in %)
1 No answer	18.978	5,3%
2 Answer device	4.221	1,2%
3 Busy	3.696	1,0%
4 Information tone - Fax - Modem	18.410	5,1%
5 Wrong telephone number	44.986	12,5%
6 Call-back possible	7.965	2,2%
7 Definitive appointment with target person (TP)	825	0,2%
8 Refusal by target person	48.068	13,4%
9 Refusal by contact person/reception (upfront refusal)	21.404	6,0%
13 No establishment at this address (private household etc.)	7.516	2,1%
14 Inactive establishment, terminated	4.146	1,2%
17 Already questioned (double address)	1.850	0,5%
18 Complete telephone interview	48.031	13,4%
20 System error	1.328	0,4%
21 Stratification maximum reached (cell full)	48.694	13,6%
34 Refusal - add number to DO NOT CALL LIST	4.335	1,2%
35 Partial interview, to be called back	158	0,0%
36 Partial interview, not to call back	2.472	0,7%
37 No appointment with TP possible during fieldwork time and period	11.325	3,2%
41 Refusal	12.520	3,5%
42 Size out of target (less than 5 employees or NA in Q105)	15.335	4,3%
44 No single establishment with 5 or more employees (Q051=0)	176	0,0%
45 Size of first contact out of scope but interview possible at subsidiary (screening countries)	100	0,0%
47 Refusal to provide information in the screening phase	385	0,1%
48 Online questionnaire sent (still open)	18.840	5,3%
52 Completed online interview received	1.289	0,4%
53 Incomplete online interview received	303	0,1%
56 No adequate TP at the establishment	11.281	3,1%
TOTAL:	**358.637**	100,0%

7.6.3 Cooperation and response rates by country

Cooperation rates for ESENER-2 vary considerably between countries. The variations reflect to a large degree national differences in the willingness to cooperate in surveys among organisations and in particular surveys on the health and safety topic. Another factor likely to have some influence on the achieved rates is the degree of experience of the national fieldwork partners with high quality b2b interviewing.

The highest cooperation rate was achieved in Malta, with 51%. The lowest rate was reported from Poland, with just 11%.

Comparing the cooperation rates for the entire universe of establishments with 5 or more employees to those for establishments with 10 or more employees (the universe for ESENER-1[18]), it can be seen that in almost all countries response rates for the universe 10+ are higher. The only exception to this is Luxembourg where the rate for the universe 5+ is by 1 percentage point higher than that for 10+. In relative terms, differences for the two types of universes are largest in Montenegro and Poland.

As for the calculation of the refusal rates, it should be noted that cases with code 48 "online questionnaire sent (still open)" were not counted as refusals. A good part of these could also be considered as refusals.

[18] The exclusion of NACE A in the universe of ESENER-1 is not considered in the figures shown for the universe of 10+ employees. But NACE A is a small sector and has a response rate very close to the average of all sectors, thus this effect is marginal if comparing response rates between ESENER-1 and ESENER-2.

Table 24: Cooperation, response, contact and refusal rate, by country

Country	Cooperation rate		Response rate		Contact rate		Refusal rate	
	Total universe (5+ employees)	Establishments with 10+ empl.	Total universe (5+ employees)	Establishments with 10+ empl.	Total universe (5+ employees)	Establishments with 10+ empl.	Total universe (5+ employees)	Establishments with 10+ empl.
AL	38%	50%	25%	32%	73%	67%	23%	25%
AT	22%	25%	18%	22%	94%	95%	33%	32%
BE	35%	37%	23%	25%	76%	77%	19%	18%
BG	30%	33%	18%	23%	70%	73%	22%	20%
CH	21%	26%	15%	22%	94%	94%	36%	33%
CY	21%	26%	10%	19%	74%	82%	20%	25%
CZ	16%	18%	10%	12%	73%	74%	31%	30%
DE	13%	16%	10%	13%	87%	87%	49%	50%
DK	37%	40%	27%	31%	83%	84%	7%	5%
EE	37%	39%	30%	34%	88%	88%	11%	11%
EL	32%	34%	24%	29%	81%	90%	8%	8%
ES	21%	23%	12%	13%	74%	72%	28%	26%
FI	32%	35%	28%	32%	97%	98%	20%	16%
FR	26%	27%	20%	22%	84%	85%	27%	26%
HR	26%	28%	22%	25%	91%	91%	18%	15%
HU	12%	14%	8%	9%	76%	76%	36%	35%
IE	18%	21%	15%	18%	93%	94%	47%	44%
IS	35%	42%	26%	32%	87%	87%	26%	22%
IT	24%	28%	16%	21%	75%	78%	34%	31%
LT	30%	32%	26%	28%	92%	92%	23%	21%
LU	28%	27%	22%	22%	91%	91%	22%	20%
LV	31%	32%	23%	25%	85%	87%	10%	9%
ME	15%	27%	6%	11%	49%	44%	22%	17%
MK	42%	51%	24%	30%	69%	69%	2%	2%
MT	51%	52%	36%	44%	97%	97%	18%	20%
NL	22%	27%	17%	21%	86%	83%	34%	30%
NO	23%	25%	15%	17%	72%	74%	32%	31%
PL	11%	18%	7%	12%	75%	78%	37%	34%
PT	38%	41%	32%	36%	91%	95%	14%	12%
RO	18%	23%	10%	13%	73%	70%	22%	25%
RS	29%	35%	22%	27%	81%	82%	20%	16%
SE	27%	30%	21%	23%	89%	89%	27%	26%
SI	28%	30%	26%	29%	98%	99%	18%	12%
SK	22%	24%	12%	14%	58%	61%	26%	24%
TR	14%	no size info	4%	no size info	40%	no size info	21%	no size info
UK	24%	25%	19%	22%	96%	96%	15%	6%
ALL	22%	26%	14%	19%	75%	82%	27%	26%

The following table shows all (non-) response reasons by country in absolute figures. This presentation allows for the calculation of different variants of response, cooperation etc. rates.

Table 25: Non-response reasons by country, in absolute figures

Response code	AL	AT	BE	BG	CH	CY	CZ	DE	DK	EE	EL	ES
1 No answer	30	44	277	298	63	263	1.768	289	179	109	284	1.827
2 Answer device	0	3	214	5	16	21	66	113	95	2	9	296
3 Busy	0	2	1	20	3	15	70	38	3	2	19	71
4 Information tone/ Fax/Modem	87	32	861	337	52	211	1.358	423	341	133	713	2.485
5 Wrong telephone number	712	428	186	561	458	1.398	641	2.273	349	60	206	2.226
6 Call-back possible	0	0	10	0	89	170	8	298	5	1	250	616
7 Definitive appointment with target person (TP)	0	0	4	0	21	5	0	172	1	0	10	206
8 Refusal by target person	130	1.086	707	219	1.410	495	3.240	2.427	176	239	372	7.031
9 Refusal by contact person/reception (upfront refusal)	88	147	173	394	611	296	571	3.442	18	23	72	33
13 No establishment at this address (private household)	41	43	110	64	453	580	135	273	45	13	41	827
14 Inactive establishment, terminated	33	106	44	60	202	109	87	391	45	23	46	251
17 Already questioned (double address)	16	73	66	25	73	49	42	97	70	8	20	91
18 Complete telephone interview	750	1.467	1.488	740	1.410	738	1.378	2.188	1.424	749	1.494	3.099
20 System error	18	61	4	15	23	22	39	68	45	0	17	63
21 Stratification maximum reached (cell full)	473	1.517	1.205	621	1.259	605	1.253	1.573	1.449	991	2.022	2.654
34 Refusal - add number to DO NOT CALL LIST	400	44	14	54	408	6	41	26	15	1	13	10
35 Partial interview, to be called back	0	0	0	0	0	1	0	0	0	0	1	4
36 Partial interview, not to call back	6	12	36	19	33	38	52	48	5	0	25	31
37 No appointment with TP possible during fieldwork time and period	68	296	76	95	250	29	249	4.384	70	16	38	0
41 Refusal also to online interview option	1	1.176	260	86	918	627	382	1.223	115	1	15	522
42 Size out of target (less than 5 employees or NA in Q105)	140	440	134	119	1.002	896	81	1.734	225	104	177	2.478
44 No single establishment with 5 or more employees (Q051=0)	0	13	13	5	0	29	3	0	0	5	28	0
45 Size of first contact out of scope but interview possible at subsidiary (screening countries)	0	2	38	1	0	0	3	0	0	0	30	0
47 Refusal to provide information in the screening phase	0	12	28	23	0	4	10	0	0	5	12	0
48 Online questionnaire sent (still open)	29	869	286	218	725	541	1.870	1.275	689	11	328	980
52 Completed online interview received	0	36	16	10	101	13	130	73	84	1	9	63
53 Incomplete online interview received	0	7	1	7	23	6	20	13	22	0	5	10
56 No adequate TP at the establishment	16	349	246	62	277	69	1.148	791	192	9	113	1.103
TOTAL:	**3.038**	**8.265**	**6.498**	**4.058**	**9.880**	**7.236**	**14.645**	**23.632**	**5.662**	**2.506**	**6.369**	**26.977**

Response code	FI	FR	HR	HU	IE	IS	IT	LT	LU	LV	ME	MK
1 No answer	8	429	1	149	3	83	308	83	116	30	215	33
2 Answer device	0	244	0	26	5	6	34	5	18	4	2	3
3 Busy	1	3	1	0	0	21	14	3	6	2	66	2
4 Information tone - Fax - Modem	4	573	196	162	18	33	2.636	90	103	40	453	213
5 Wrong telephone number	142	541	130	4.192	295	229	423	72	68	421	2.997	719
6 Call-back possible	151	265	73	493	130	20	371	10	8	5	5	0
7 Definitive appointment with target person (TP)	17	54	4	22	5	3	13	0	1	0	0	0
8 Refusal by target person	724	744	430	3.004	1.636	146	1.546	326	262	196	977	38
9 Refusal by contact person/reception (upfront refusal)	42	921	103	2.941	494	5	1.253	61	60	86	73	7
13 No establishment at this address (private household)	6	56	17	817	27	18	137	63	65	131	103	145
14 Inactive establishment, terminated	120	17	19	227	25	165	143	27	32	107	53	29
17 Already questioned (double address)	9	21	5	81	18	27	16	14	94	14	23	5
18 Complete telephone interview	1.475	2.224	729	1.451	729	722	2.233	741	702	746	444	749
20 System error	3	18	21	53	3	2	142	9	102	4	12	36
21 Stratification maximum reached (cell full)	1.757	1.395	1.053	2.452	609	546	1.349	661	580	1.198	680	855
34 Refusal - add number to DO NOT CALL LIST	6	2	9	495	54	574	34	79	216	23	370	1
35 Partial interview, to be called back	0	2	0	2	1	0	0	0	0	0	0	0
36 Partial interview, not to call back	4	1.383	6	72	4	7	37	14	8	2	4	3
37 No appointment with TP possible during fieldwork time and period	183	1.064	3	134	80	13	1.560	63	55	6	96	4
41 Refusal also to online interview option	118	258	71	300	44	12	278	155	157	19	100	3
42 Size out of target (less than 5 employees or NA in Q105)	391	177	50	422	97	159	286	105	74	149	169	225
44 No single establishment with 5 or more employees (Q051=0)	0	0	3	6	0	8	0	0	0	5	10	6
45 Size of first contact out of scope but interview possible at subsidiary (screening countries)	0	0	0	3	0	7	0	0	0	0	1	1
47 Refusal to provide information in the screening phase	0	0	2	55	0	4	0	4	0	1	30	8
48 Online questionnaire sent (still open)	231	279	380	1.349	367	32	736	380	507	96	304	88
52 Completed online interview received	36	32	22	63	21	35	21	33	50	7	8	1
53 Incomplete online interview received	6	9	12	12	6	6	3	6	17	5	1	2
56 No adequate TP at the establishment	53	363	120	185	240	7	255	18	106	31	165	3
TOTAL:	**5.487**	**11.074**	**3.460**	**19.168**	**4.911**	**2.890**	**13.828**	**3.022**	**3.407**	**3.328**	**7.361**	**3.179**

Response code	MT	NL	NO	PL	PT	RO	RS	SE	SI	SK	TR	UK
1 No answer	1	134	159	2.708	3	76	76	239	2	471	8.220	0
2 Answer device	0	40	68	1.719	13	3	1	32	0	66	1.090	2
3 Busy	0	11	7	89	31	3	14	19	1	19	3.078	61
4 Information tone - Fax - Modem	0	531	142	1.303	197	131	112	181	46	1.391	2.796	26
5 Wrong telephone number	31	559	2.416	2.091	156	1.851	433	348	16	804	15.673	881
6 Call-back possible	17	29	182	2.396	14	122	1	310	39	29	1.076	772
7 Definitive appointment with target person (TP)	3	0	5	59	36	1	0	45	0	3	123	12
8 Refusal by target person	175	1.549	2.231	7.389	259	1.551	425	1.184	624	1.117	2.593	1.410
9 Refusal by contact person/reception (upfront refusal)	25	647	344	139	141	8	40	341	65	380	5.691	1.669
13 No establishment at this address (private household)	113	114	41	915	20	543	44	9	8	22	1.000	477
14 Inactive establishment, terminated	48	31	98	190	52	187	8	84	41	25	736	285
17 Already questioned (double address)	46	19	19	231	33	172	15	32	12	20	246	48
18 Complete telephone interview	436	1.395	1.418	2.217	1.477	744	743	1.453	1.043	746	2.247	4.242
20 System error	5	47	40	79	4	20	26	43	25	38	175	46
21 Stratification maximum reached (cell full)	33	1.340	858	1.434	1.197	1.070	862	1.103	1.876	724	847	8.593
34 Refusal - add number to DO NOT CALL LIST	2	30	91	11	18	81	30	38	5	82	1.029	23
35 Partial interview, to be called back	0	0	0	3	0	0	0	0	0	0	137	7
36 Partial interview, not to call back	1	24	6	3	42	2	5	5	2	65	325	143
37 No appointment with TP possible during fieldwork time and period	2	102	483	105	68	1	17	141	0	82	1.285	207
41 Refusal also to online interview option	23	683	83	4.198	154	0	161	238	1	5	52	81
42 Size out of target (less than 5 employees or NA in Q105)	83	252	105	1.340	85	248	45	248	48	79	885	2.083
44 No single establishment with 5 or more employees (Q051=0)	0	0	0	0	17	8	4	0	2	1	10	0
45 Size of first contact out of scope but interview possible at subsidiary (screening countries)	1	0	0	0	8	0	0	0	0	2	3	0
47 Refusal to provide information in the screening phase	1	0	0	0	5	4	6	0	2	12	157	0
48 Online questionnaire sent (still open)	144	957	833	1.831	515	512	235	626	100	143	159	215
52 Completed online interview received	16	124	95	40	36	12	9	68	8	4	4	8
53 Incomplete online interview received	6	27	15	13	8	5	6	20	2	1	0	1
56 No adequate TP at the establishment	37	168	306	1.576	93	274	68	339	23	177	1.605	694
TOTAL:	**1.249**	**8.813**	**10.045**	**32.079**	**4.682**	**7.629**	**3.386**	**7.146**	**3.991**	**6.508**	**51.242**	**21.986**

7.6.4 Cooperation rates by size-class and by sector

Cooperation and response rates by size-class and thus the number of addresses needed for each cell of the stratification matrix varied considerably. Table 26 below shows the cooperation rate by size-class, with the size-information taken from the address source because the corrected size-information as used in the data-set and in the steering of the sample is not available for addresses where no interview resulted. The table differentiates between screening- and non-screening countries since the size information for screening countries refers to the entire organisation. In case of multi-site organisations this information is thus far less reliable than the size indication for non-screening countries.

Table 26: Cooperation rate by size-class (size indication from address source)

		Cooperation rate		
Size class according to address source	**Number of eligible addresses**	**All countries**	**Screening countries**	**Non-screening countries**
No size indication	23.838	16%	16%	(very few cases)
5 to 9 employees	74.795	17%	20%	15%
10 to 49 employees	75.528	23%	24%	22%
50 to 249 employees	36.223	28%	30%	26%
250 or more employees	17.558	33%	40%	31%
ALL	**227.942**	**22%**	**23%**	**21%**

Overall, the rates achieved in the larger establishments are notably higher than those in the smaller ones, with cooperation rates almost doubling from 17% in size-class 5 to 9 employees to 33% in the largest size-class (250 or more employees). Particularly establishments of size-class 5 to 9 showed response and cooperation rates well below the average over all size-classes included in the survey, though with some country differences.

The analysis of cooperation rates by sectors of activity also shows some variations: While cooperation rates were highest in the Public Administration (NACE O), they are smallest in the Real estate sector (NACE L) and in Construction (NACE F).

The observed large differences in the cooperation rates between sectors and even more between sizes cannot necessarily be generalized. For surveys on other topics, patterns might be different.

Table 27: Cooperation and response rates, by sector

NACE Rev. 2 sector	Cooperation rate	Response rate	Refusal rate	Contact rate
Not classified*	13%	4%	21%	40%
A	21%	13%	25%	80%
B	30%	20%	25%	77%
C	25%	18%	28%	83%
D	35%	25%	20%	80%
E	30%	21%	24%	81%
F	19%	12%	30%	79%
G	19%	13%	33%	81%
H	23%	15%	28%	78%
I	19%	14%	32%	82%
J	20%	13%	30%	78%
K	19%	13%	31%	81%
L	16%	10%	31%	77%
M	22%	15%	32%	82%
N	22%	14%	28%	79%
O	32%	22%	14%	79%
P	24%	18%	21%	85%
Q	26%	19%	24%	84%
R	29%	19%	24%	79%
S	24%	16%	29%	83%
ALL	22%	14%	27%	75%

* Addresses of this category are from few countries only; no judgement about unclassified addresses possible

7.7 Specific measures applied to enhance response rates

In order to enhance response rates, a number of measures had been agreed between EU-OSHA and TNS:

- Samples were selected and acquired locally by each fieldwork partner, but were then sent to a central TNS sampling unit where they were checked and administered centrally, according to uniform rules. This also implied the central release of the initial samples (with a ratio of 5:1 addresses) and all further samples considered to be necessary in the further course of field-work.
- Fieldwork was monitored centrally (in addition to the checks of fieldwork quality done in the local studios), using the same tools and templates for all countries.
- A motivation letter with the logo and signature of EU-OSHA was drafted and translated into all languages used in the survey. The motivation letter was foreseen to be sent by email (or by fax, where this was preferred) to establishments/companies that did not immediately agree to an interview or a fixed appointment, but did on the other hand also not totally refuse the sur-vey either. Some discretion was left to the individual interviewers on when it made sense to

send the motivation letter in particular interview situation and when not. In total, 25.151 emails with the motivation letter were sent (the number of faxes sent is not available). The motivation letter proved to be very helpful, particularly in larger organisations where often different people were involved in the general decision on the participation and in the decision on the most appropriate person for the interview.

- In addition to the motivation letter, EU-OSHA also placed information for respondents on their website. This information was available in all languages used in the survey.
- During the fieldwork period, addresses with non-response code "5" (wrong telephone number) were extracted from the sample and efforts were made to investigate the correct telephone numbers. This was done once for each country, at different dates (depending on the fieldwork progress). All in all, 9.389 addresses without valid telephone numbers were extracted. Out of these, 3.153 could be returned with newly investigated correct telephone numbers (success rate of 33,6%).
- For respondents refusing participation in the CATI interview, an additional online interviewing option was offered in all countries (see chapter 8 for details).

7.8 Number of call attempts

In order to maximize response rates, addresses that could not be reached with the first call were re-called several times at different times of the day and different days of the week before classify
Table 28 shows the number of call attempts in a differentiation by response codes, i.e. by the final state of the address at the end of fieldwork. On average, all addresses were called about 5 times (4,87). Non-response codes 1 (No answer) and 2 (Answer device) were called almost 10 times and thus considerably more often in order to reach somebody at these addresses. The lower number of calls made for addresses with code 3 (Busy) is largely owed to the fact that the majority of the addresses with this final code are from Turkey (83%), a country with a particularly difficult sampling situation and difficulties to finalise fieldwork on time in the end. For code 4 (Information tone – fax – modem) and 5 "Wrong telephone number", the number of recalls is also considerably lower – here, it does not make sense to do numerous call attempts since the status will not change with further calls.

Each completed telephone interview on average required about 5 calls (4,95). For a successful interview (CATI or CAWI) in a large workplace (250+ employees) more call efforts were necessary than for the small workplaces, but with ca. 0,6 calls the difference in the number of call attempts by size is not very big[19]. Differences between the sectors of activities are also rather moderate: The lowest number of call attempts per successful interview were needed in NACE B, with 4,64 calls in total. The highest number of calls were registered for workplaces of NACE I, with 5,62. The number of calls made per successful interview varied between 1 call (in 14% of all successful interviews) and 60 call attempts (1 single case). For 42% of all completed interviews, at least 4 calls were necessary, for 9% of all interviews, even 10 or more calls were necessary.

[19] The results in detail: 4,98 attempts in size 5-9 employees, 5,11 in 10-49, 5,13 in 50-249 and 5,56 in 250+. The number of call attempts was lowest for the addresses without size classification (

Table 28: Number of call attempts, by final response code

Final response code	Number of addresses used/touched for the survey	Average number of contact attempts
1 No answer	18.978	9,68
2 Answer device	4.221	9,70
3 Busy	3.696	5,37
4 Information tone - Fax - Modem	18.410	2,82
5 Wrong telephone number	44.986	2,51
6 general appointment	7.965	7,34
7 Definitive appointment with target person	825	7,76
8 Refusal by target person	48.068	4,90
9 Refusal by contact person/reception (upfront refusal)	21.404	5,00
13 No establishment at this address (private household etc.)	7.516	2,67
14 Inactive establishment, terminated	4.146	2,79
17 Already questioned (double address)	1.850	4,62
18 Complete telephone interview	48.031	4,95
20 System error	1.328	4,86
21 Stratification maximum reached (cell full)	48.694	5,86
34 Refusal - add number to DO NOT CALL LIST	4.335	2,98
35 Partial interview, to be called back	158	7,87
36 Partial interview, not to call back	2.472	7,59
37 No appointment with target person possible during fieldwork time and period	11.325	5,94
41 Refusal also of online interview	12.520	4,43
42 Size out of target (less than 5 employees or NA in Q105)	15.335	3,65
44 No single establishment with 5 or more employees (Q051=0)	176	4,30
45 Size of 1st contact out of scope but interview possible at subsidiary (screening countries)	100	4,10
47 Refusal to provide information in the screening phase	385	2,97
48 Online questionnaire sent (still open)	18.840	4,72
52 Completed online interview received	1.289	4,62
53 Incomplete online interview received	303	4,66
56 No adequate target person at the establishment	11.281	4,50
ALL	358.637	4,87

Table 29 shows that also between countries, there are some differences regarding the required call attempts: While in Albania, just 2,6 call attempts had to be made per address, in Greece, France, Ireland, Malta and the United Kingdom about 6,5 attempts were recorded.

Table 29: Number of call attempts, by country

Country	Number of addresses used/touched for the survey	Average number of contact attempts
AL	3.038	2,60
AT	8.265	4,36
BE	6.498	4,53
BG	4.058	4,22
CH	9.880	3,59
CY	7.236	4,65
CZ	14.645	4,85
DE	23.632	5,40
DK	5.662	5,15
EE	2.506	3,10
EL	6.369	6,50
ES	26.977	6,19
FI	5.487	5,17
FR	11.074	6,59
HR	3.460	4,66
HU	19.168	3,69
IE	4.911	6,59
IS	2.890	4,34
IT	13.828	5,57
LT	3.022	4,91
LU	3.407	4,85
LV	3.328	3,65
ME	7.361	2,74
MK	3.179	2,30
MT	1.249	6,57
NL	8.813	4,41
NO	10.045	4,85
PL	32.079	6,31
PT	4.682	5,39
RO	7.629	5,61
RS	3.386	3,74
SE	7.146	5,89
SI	3.991	3,51
SK	6.508	4,25
TR	51.242	3,02
UK	21.986	6,60
ALL	358.637	4,87

7.9 Observations from fieldwork

Overall, fieldwork ran smoothly and in most countries without any noteworthy problems. The main general obstacle was the positioning of fieldwork in the summer holiday period which complicated the organisation of interviewing. The coincidence of fieldwork with the summer holidays had different impacts:

- In many southern European countries, fieldwork slowed down considerably or even came to a still-stand. This was particularly the case for Spain, France, Italy and Turkey, but also for some of the Balkan countries. The countries tried to cope with this situation by calling many addresses still in July before the main closure period and making appointments then for September. Though this generally worked well, the many open appointments with dates scheduled for the second half of the fieldwork period made the sample monitoring more difficult.
- Due to the closure of almost all public schools during the summer holiday period, it was in some countries difficult to get interviews in the Education sector (NACE P). In order to avoid skewed sample structures due to this, interviewing in the Education sector was interrupted for the core school holiday period. At the same time, specific quota were set for NACE Q (Human health and social work) in order to avoid that within the sector group "NACE P & Q" of the sampling matrix too many interviews would be conducted with NACE Q so that after the end of the school holidays, there would have been no room for further interviews in NACE P.

In addition to this general challenge, the following country specific fieldwork challenges and solutions are worth mentioning:

Germany:
Germany had to struggle hard with the smallest size-class. Willingness to cooperate in the survey was considerably lower for these small establishments.

As a measure to improve the generally rather low response rates for Germany, soft refusals (refusals for time reasons, due to code 56 "No adequate target person at the establishment" etc.) were called again in Germany by particularly successful interviewers.

Hungary:
In order to improve the low response rates for Hungary, the local fieldwork partner undertook a number of measures in the last 2-3 weeks before concluding fieldwork:

- Hungary had a relatively large number of interviews terminated due to "system error". Several of these were interviews terminated for some technical problems in the middle of the interview. In order to complete these interviews, the local team reconstructed the interviews from the recordings and tried to complete them with another call. To this end, the CATI script was additionally installed locally and a few particularly successful interviewers called all establishments with the "system error" code again. This measure led to the completion of 96 interviews formerly classified as "system errors".
- Likewise, the Hungarian team called establishments again that had offered to do the interview online, but had not submitted a completed CAWI questionnaire by then in spite of the email reminder sent out routinely after one week. From this measure, additional 18 interviews could be made by phone on the local system.

- Furthermore, soft refusals were called again in Hungary by particularly successful interviewers, trying to convert some of these into interviews.

Iceland:
In order to reach the targeted total number of n = 750 interviews, respondents who had received the CAWI interview link but had not yet completed the online interview were called again by phone and were reminded by this way on the completion of the online version.

Malta:
In order to reach the targeted total of n=450 interviews out of the very limited overall sample available in the country (1.300 addresses), all soft refusals were recalled towards the end of the fieldwork period.

Poland:
In Poland, refusal rates in the smallest size-classes and particularly in 5-9 employees were very large. The country therefore ran out of addresses in size-class 5 to 9 shortly before finalisation of fieldwork. It was decided to accept larger deviations from the targets for size-class 5 to 9 since a new address order would have taken too much time.

Slovakia:
Because of a restructuring measure at TNS in Slovakia, the Slovakian interviewer team was relatively young and less experienced than the team in other countries. After having started the survey with a rather low response rate, the head of the central TNS Fieldwork Efficiency Department located in London took care to provide additional training and support to the Slovakian team in order to enhance their success rates. These efforts proved to be fruitful, cooperation rates for Slovakia rose significantly in the further course of fieldwork.

Turkey:
- In Turkey, the unavailability of an adequate sampling frame with indications on size and sector and the out-datedness of many of the addresses led to a huge number of futile calls (establishments that ceased to exist, outdated telephone numbers, telephone numbers ending up at private households, establishments smaller than 5 employees etc.).
- In addition, the acceptance of the survey was low in Turkey, resulting in a high rate of refusals. These were often due to the lack of somebody at the establishment who really felt responsible for the topic.

Due to these factors, many interviewing hours were needed to finalize the survey in Turkey and in spite of the earlier start of fieldwork in July for Turkey, fieldwork had to be prolonged until the mid of October.

8 Online interviews (CAWI)

8.1 Online interviews as means to reduce non-response

The possibility for respondents to do the interview online as CAWI interview was introduced to ESENER-2 as a means of reducing non-response. ESENER-2 is thus not a normal CATI/CAWI switch-mode survey where respondents have the free choice to do the interview either CATI or CAWI. Without exceptions, CAWI interviews were only done with respondents that were previously contacted by telephone for an ESENER-2 interview, but had refused to give a telephone interview. These respondents were then asked in Q007 whether they would be willing to do the interview online instead:

Q007
"You mention how you generally don't participate in telephone interviews. Would you be willing to complete the questionnaire in an online version instead?"

From those who agreed to this, an email address was taken up by the interviewer and a personalized link to the online questionnaire was sent out on the same day. One week afterwards, one reminder was sent to all those who had not completed the CAWI interview by then. Further reminders were not sent in order not to annoy people.

The CAWI option was offered in all countries. Completed CAWI interviews came finally in from 35 countries, i.e. from all countries except for Albania. The number of invitations to the CAWI interview sent out to respondents who refused to participate in the telephone interview varied however considerably between countries, from 12 in Estonia to 2.020 in the Czech Republic.

8.2 Success rate of online interviews

The success rate of the CAWI interviews (accepted online interviews as % of all CAWI invitations sent out) also varied considerably: Taking into account only countries where a substantial number of CAWI invitations was sent out (100 or more), the range is between 1% in Greece and 13% in Finland. On the average of all countries, the success rate for the CAWI option was at 6,3%. When including also the completed interviews that were finally rejected for quality reasons, the rate rises to 7,8%.

When comparing the cooperation rates of the ESENER-2 online variant to those of genuine online surveys among organisations, it needs to be taken into account that the CAWI interviews carried out for ESENER-2 were all completed by respondents who had been contacted by telephone and had refused to take part in the telephone interview. This is therefore a group of persons with a generally lower than average willingness to cooperate. Also, a number of local fieldwork partners reported that they had the impression that the agreement to the online interview option was repeatedly used as a possibility to "escape" the interview without having to say a clear "no". Nevertheless, the CAWI option helped to convert a number of refusals into completed interviews and thus contributed to the survey quality.

The data-set contains only CAWI interviews that passed certain minimum quality checks: Interviews with 10% or more of item non-response as well as interviews that lasted less than 8 minutes were excluded from the sample. In total, n = 303 of the 1.592 completed CAWI interviews were rejected which means a rejection rate of 19% (respectively an acceptance rate of 81%).

Table 30: CAWI invitations and CAWI interviews, by country

	Number of CAWI invitations sent	Number of received online interviews	Number of accepted online interviews*	Number of rejected online interviews*	% of rejected online interviews	Accepted online interviews in % of invitations sent
AL	29	0	0	0	0%	0%
AT	912	43	36	7	16%	4%
BE	303	17	16	1	6%	5%
BG	235	17	10	7	41%	4%
CH	849	124	101	23	19%	12%
CY	560	19	13	6	32%	2%
CZ	2.020	150	130	20	13%	6%
DE	1.361	86	73	13	15%	5%
DK	795	106	84	22	21%	11%
EE	12	1	1	0	0%	8%
EL	362	14	9	5	36%	2%
ES	1.053	73	63	10	14%	6%
FI	273	42	36	6	14%	13%
FR	320	41	32	9	22%	10%
HR	414	34	22	12	35%	5%
HU	1.446	75	63	12	16%	4%
IE	394	27	21	6	22%	5%
IS	72	40	35	6	15%	49%
IT	760	24	21	3	13%	3%
LT	419	39	33	6	15%	8%
LU	574	67	50	17	25%	9%
LV	108	12	7	5	42%	6%
ME	313	9	8	1	11%	3%
MK	91	3	1	2	67%	1%
MT	166	22	16	6	27%	10%
NL	1.108	151	124	27	18%	11%
NO	943	110	95	15	14%	10%
PL	1.884	53	40	13	25%	2%
PT	559	44	36	8	18%	6%
RO	529	17	12	5	29%	2%
RS	250	15	9	6	40%	4%
SE	714	88	68	20	23%	10%
SI	110	10	8	2	20%	7%
SK	148	5	4	1	20%	3%
TR	159	5	4	0	0%	3%
UK	224	9	8	1	11%	4%
TOTAL	**20.469**	**1.592**	**1.289**	**303**	**19%**	**6%**

8.3 Structure of the online interviews

Though the share of CAWI interviews was larger in the large size-classes, the CAWI interviews are generally spread over a broad variety of sectors and size classes. Only in very few and small cells (small establishments of NACE B, large establishments of NACE L and R) there were no CAWI interviews. The relatively even spread over the sectors ensures that in case that further analyses should detect any systematic mode differences between the CATI and the CAWI interviews, these effects will not be concentrated on a specific size-class or specific sectors of activity.

Table 31: Distribution of CAWI interviews, in % of all interviews within the cell

NACE Rev 2 division	5-9	10-49	50-249	250+	Total
1 A	1,8%	2,7%	2,0%	4,3%	**2,2%**
2 B	0,0%	4,5%	1,2%	8,3%	**2,9%**
3 C	2,1%	2,6%	3,2%	3,4%	**2,8%**
4 D	2,2%	2,8%	0,9%	1,5%	**1,8%**
5 E	1,3%	2,8%	3,0%	3,2%	**2,7%**
6 F	2,7%	3,2%	3,4%	2,4%	**3,0%**
7 G	2,1%	3,1%	2,6%	4,5%	**2,7%**
8 H	1,7%	2,6%	4,0%	2,7%	**2,7%**
9 I	1,9%	2,9%	3,4%	2,3%	**2,6%**
10 J	2,1%	4,8%	1,2%	3,9%	**3,2%**
11 K	2,3%	3,9%	4,0%	3,7%	**3,5%**
12 L	1,9%	2,2%	0,0%	0,0%	**1,5%**
13 M	2,9%	3,7%	2,7%	3,3%	**3,2%**
14 N	1,1%	2,4%	2,1%	4,0%	**2,2%**
15 O	0,7%	0,7%	3,0%	2,8%	**1,8%**
16 P	1,6%	2,3%	2,4%	4,6%	**2,4%**
17 Q	1,7%	1,7%	2,2%	1,9%	**1,9%**
18 R	1,3%	3,8%	1,2%	0,0%	**2,4%**
19 S	2,9%	3,8%	4,0%	2,7%	**3,4%**
Total:	**2,1%**	**2,8%**	**2,8%**	**3,1%**	**2,6%**

In order to analyse more in detail whether participants in the CAWI interview option do significantly differ from participants in the CATI survey, a logit regression model was calculated that took into consideration a set of background variables for which differences were assumed.

Table 32: Results from logit regression, with "Mode CAWI" as dependent variable

Explaining factors:	Level of significance: * low (p<0,05) ** medium (p<0,01) *** high (p<0,005)	Direction of the correlation: + : more likely to participate in CAWI - : less likely to participate in CAWI	Degree/extent of the correlation (odds ratio)
Country (Reference: United Kingdom)			
Netherlands	***	+	**38,154**
Belgium	***	+	**4,535**
Germany	***	+	**16,181**
Italy	***	+	**4,380**
Spain	***	+	**9,268**
Poland	***	+	**6,962**
Sweden	***	+	**30,545**
Turkey	-		
Czech Republic	***	+	**37,832**
Romania	***	+	**7,098**
Greece	-		
Hungary	***	+	**15,671**
Austria	***	+	**10,739**
Bulgaria	***	+	**5,113**
Switzerland	***	+	**29,012**
Cyprus	***	+	**6,570**
Denmark	***	+	**32,782**
Estonia	-		
Finland	***	+	**12,303**
Croatia	***	+	**11,744**
Ireland	***	+	**14,466**
Iceland	***	+	**22,100**
Lithuania	***	+	**18,076**
Luxembourg	***	+	**29,933**
Latvia	*	+	**3,032**
Macedonia	-		
Malta	***	+	**13,329**
Norway	***	+	**39,865**
Portugal	***	+	**9,010**
Slovenia	*	+	**3,202**
Slovakia	-		
France	***	+	**6,564**
Serbia	***	+	**4,211**
Montenegro	***	+	**7,085**
Size class (Reference: size_1 = 5 to 9 employees)			
size_2 (10 to 49 employees)	***	+	**1,516**
size_3 (50 to 249 employees)	***	+	**1,952**
size_4 (250 or more employees)	***	+	**2,536**
Sector group (Reference: Sector_4 = NACE G,H,I,R)			
NACE A	-		
NACE B, D, E, F	-		
NACE C	-		
NACE J, K, L, M, N, S	-		
NACE O	-		
NACE P, Q	-		

Explaining factors:	Level of significance: * low (p<0,05) ** medium (p<0,01) *** high (p<0,005)	Direction of the correlation: + : more likely to participate in CAWI - : less likely to participate in CAWI	Degree/extent of the correlation (odds ratio)
Function of the respondent (Reference: Owner, managing director)			
Manager without OSH duties	***	-	**0,744**
Manager with OSH duties	-		
OSH specialist	-		
Employee representative in charge of OSH	-		
External OSH consultant	-		
Ownership type (Reference: Not public)			
Public organisation	***	-	**0,543**
NA ownership type	*	+	**2,236**
Type of organisation (Reference: Single-site organisation)			
Part of a multi-site organisation	***	-	**0,520**
Economic situation (Reference: Very good economic situation)			
Quite good economic situation	-		
Economic situation neither good nor bad	***	+	**1,436**
Quite bad economic situation	***	+	**1,679**
Very bad economic situation	***	+	**2,051**
Employee representation in terms of OSH (Reference: non-existence of the respective position/body of representation)			
With a works council	-		
With a trade union representation	**	-	**0,786**
With a heath and safety representative	***	-	**0,739**
With a health and safety committee	-		
Dependent variable: Mode = CAWI interview (participation in the CAWI interview - instead of the telephone interview)			

The regression[20] analysis shows that "Country" is the most important factor explaining the participation in the CAWI interviews (instead of the participation in CATI). With the exception of Turkey, Greece, Estonia, Macedonia and Slovakia, it is in all countries more likely that respondents participate in CAWI than in the United Kingdom which has been chosen as reference in the country analysis[21].

This result is not surprising in view of the large variety in the share of interviews conducted online, from a mere 0,1% in Estonia to 8,6% in the Czech Republic. But since the multi-variate analysis controls for a number of further factors, the results differ to a certain degree from the mere bivariate analysis on the share of CAWI interviews among all interviews done in a country. Though the Czech Republic has the highest share of interviews conducted in CAWI, the likelihood that an interview is conducted in CAWI instead of CATI is even slightly higher in the Netherlands and in Norway if controlling for the other variables in this logit regression model.

The large differences in the CAWI mode by country have various reasons:

- CAWI interviewing among businesses is more common in some countries than in others. In countries where this mode has been widely used in the past already, it is more likely that it also works for ESENER-2 as a means to avoid total non-response. Denmark and the Netherlands are for example countries where this mode has already been used frequently for b2b surveys.

[20] The regression analysis as described here explains however only a relatively small part of the variance regarding the participation in the CAWI interview (Pseudo R2 = ca. 11%).

[21] Albania was not included in the regression model because there was no valid CAWI interview from this country.

- The local fieldwork partners were encouraged to offer the CAWI mode only as a means to reduce non-response. A specific question was foreseen in the entry part aimed at convincing respondents refusing CATI to participate in CAWI instead. While this procedure was the same for all countries, there was some discretion left to the local fieldwork partners and their interviewers as regards the classification of respondents into the category *"refusal to participate in a telephone interview"* as opposed to some kind of general refusal category. Some fieldwork partners made more use of this specific refusal category than others, depending e.g. on their assessment of the likelihood that the CAWI interview would then really be completed.
- The regression analysis was limited to the number of accepted CAWI interviews. The share of rejected interviews does however also vary considerably. Results for countries like BG, HR, CY and EL with their high rates of refused CAWI interviews would be somewhat different in an analysis taking also these interviews into account.

The following other factors included in the regression analysis have an influence on the interviews being carried out online:

- Larger establishments are significantly more likely to use the CAWI option: Compared to the smallest size-class of 5-9 employees, it is 2,5 times more likely for a respondent from an establishment with 250 or more employees to do a CAWI interview.
- Surprisingly, there is no statistically significant correlation between the sector of activity and the mode of interviewing.
- Regarding the function of respondents, it is only the category of the "managers without OSH duties" that shows a significant correlation in the model: Respondents of this type are significantly less likely to do the interview in the CAWI mode than owners or managers. Though highly significant, the correlation is however not very strong. A possible explanation for this correlation is that if an establishment received a link for the online interview, the interview might often not be filled in by such a general manager, but be transferred at some point to somebody more involved in OSH details.
- Public entities are less likely to participate online than non-public entities.
- Units of multi-site organisations are less likely to participate online.
- Establishments with a less favorable current economic situation are more likely to answer the interview online.
- Establishments with a trade union representation or a health and safety representative are less likely to participate online than establishments not having the respective body/person.

An additional stepwise regression shows the following order in importance for the factors explaining differences:

(1) Country
(2) Type of organisation (single-site vs. multi-site)
(3) Size of the establishment
(4) Existence of an employee representation in terms of OSH
(5) Economic situation of the establishment
(6) Type/function of respondent

Summarizing these observations, it can be concluded that there are some structural differences as regards the participation in the interview by mode, though these are rather moderate.

In addition to the analyses on possible sample differences between the respondents from the CATI and the CAWI interview, also some analyses on eventual differences in the answers (mode effects) were done. These analyses and their results are described and documented in the separately published “Quality Report”.

9 Weighting: Procedure and principles

9.1 The necessity of weighting

In representative surveys based on random probability sampling weighting is used to correct differences in the probability of the units to be included in the net sample. Such differences lead to structural discrepancies of the net sample as compared to the universe. The weighting procedure corrects these discrepancies by ex post facto adapting the inclusion probabilities.

Inclusion probabilities vary if the gross sample is drawn disproportionally to the universe and/or if the number of interviews realized per cell of the net sample matrix deviates from the number of interviews in the respective cell expected due to its share in the universe[22]. Both aspects apply for the ESENER-2 survey for several reasons:

- Gross samples were deliberately drawn disproportionally: Firstly by country and secondly by establishment size within countries. In the United Kingdom and in Slovenia, additionally sector disproportionalities were introduced.
- As already mentioned, the ESENER-2 survey is expected to provide insights related to establishments (e.g. "How many *establishments* practice risk assessments?" as well as insights related to employees (e.g. "How many *employees* work in establishments which practice risk assessments?"). Since the distribution of establishments by size significantly differs from the distribution of employees, the net sample is necessarily biased at least with regard to one of the target structures.
- For each cell of the matrix defined by sector, size class and country, there is a pre-defined number of interviews to be carried out in order to have enough cases for deepening analyses. The respective shares do not reflect the shares in the universe.
- Additionally the necessity of applying a screening procedure in several countries had an effect on the inclusion probabilities of units from multi-site organisations.

The data-set contains establishment-proportional as well as employee-proportional weighting factors. For any bivariate content related[23] analysis done with the ESENER-2 data it is essential to apply the weighting. Unweighted counts will lead to results that are not representative for the population covered by the survey because the sample design is strongly disproportional in various dimensions. The weights made available with the data-set redress the various disproportionalities introduced into the sampling of the survey:

- **The weighting corrects for the disproportionality in terms of size.** In the chosen sampling design, the larger units were deliberately oversampled. The targets for each size-class did not reflect the structure of the universe of establishments, but aimed at getting enough interviews from establishments from different size classes and at getting relatively homogenous factors for both the establishment and the employee-proportional weighting.

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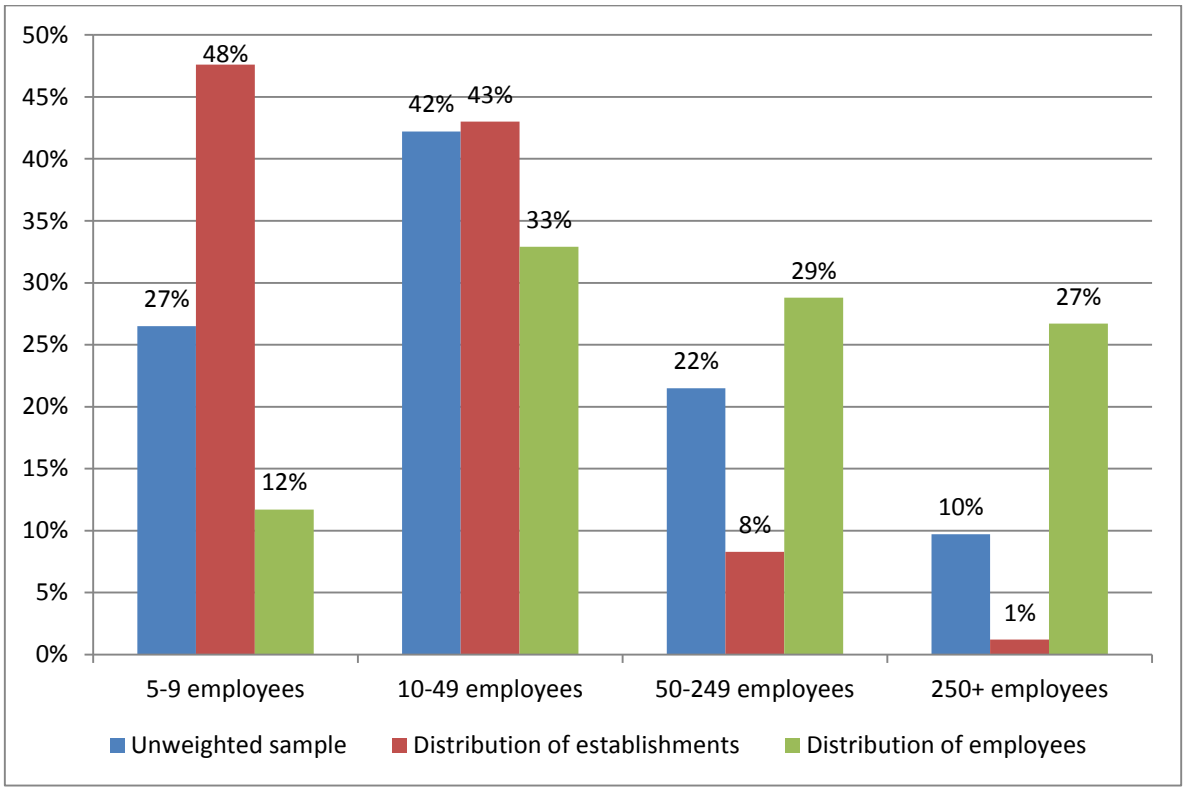
22 If there were no target number of cases given per cell, but only the aim of maximizing the response rate based on a fixed gross sample, a third mechanism could be identified resulting in different inclusion probabilities: Differing response rates between subgroups of the sample. But in ESENER-2 this point can be disregarded, as it is overruled by the fixation of the number of interviews per cell of the stratification matrix.

23 For methodological analysis as done in this report, the use of unweighted data is usually more appropriate.

The graph below illustrates to what extent the distribution of establishments and of employees across size classes differs in the universe and compares them with the actual distribution of the unweighted net sample which is somewhere in between.

Figure 3: Size-structure of the net sample, weighted and unweighted



- **The national sample sizes are also not proportional to the size of the respective national economy**. The staggered target sample sizes for ESENER-2 (450, 750, 1.500 or 2.250 interviews) reflect the differences in the national universes only to a certain degree. In spite of their smaller target sample size, small countries are still over-proportionally represented in the sample: While e.g. in Luxembourg, 750 interviews were made to represent the country's universe of about 12.000 establishments, in Germany 2.250 interviews were made for a total universe of about 1,1 million establishments. Consequently, in an establishment-proportional perspective the average inclusion rate is as high as 1:27 in Luxembourg, while it is only 1:508 in Germany. The national sample boosts lead to additional differences regarding the selection probabilities.

- In the countries that had to use the **screener** in order to realize a random selection of establishments, an additional **selection probability weighting factor** has been introduced. This weighting factor corrects for the unequal selection probabilities of subsidiaries from multi-site

organisations[24]. The exact value of this weighting factor is determined on base of the answers to the screening questionnaire: There, interviewees were asked for the number of establishments the organisation has within the defined universe in the country. This figure is used as base for the calculation of the selection probability factor. The factor is equal to the number of subsidiaries the originally selected multi-site company has in total within the defined universe. In order to give outliers (individual enterprises with a very high number of subsidiaries/local units) not too much influence, this factor was limited to 5 as maximum.

The weighting factors as described below include corrections of these design effects, as well as any potential selective non-response by sector or size. As a result the weighting adjusts the structures of the sample to the structures of the universe.

9.2 Type of weights delivered with the data-set

For both the establishment-proportional and the employee-proportional weighting there are three weighting factors available which produce identical percentage results at the national level, but have different areas of application.

9.2.1 Establishment-proportional weighting factors

There are three **establishment-proportional weighting factors provided in the data-set**:

- The factor **"estwei"** is a factor that weights the data according to the structure of the universe of establishments in a given country. It is scaled to the national net sample size, i.e. it sums up to the total number of interviews made in the country, not to the number of establishments in the universe. Weighting factors in this mode can be considerably smaller or larger than the value "1" since some interviews (those representing only a relatively small part of the universe) are "weighted down" while others are "weighted up".
  The factor "estwei" can be used for any analysis with the data of just one country. But it cannot be used for any international analysis because the size of the national samples is not proportional to the size of the national universes and this additional disproportionality is not redressed in the factor "estwei".
- The factor **"estprop"** is based on the factor "estwei". It additionally adjusts for the disproportionality of the national sample sizes and is therefore the factor **to be used for international analyses**. The factor is scaled to the number of interviews across all countries, not to the number of establishments in the universe. Since national structures are not affected this factor can also be used for descriptive national analyses. Since the weighted number of interviews per country does not correspond to the actual national net sample size, analyses including significance tests at national level should better be made by using the factor "estwei".

[24] The entry factor has been applied to "second interviews" only, i.e. to interviews with addresses obtained in screening interviews from the main address (i.e. the address from the company based address source, usually the headquarters).

- The factor **"estex"** produces the same percentage results as "estprop", but is an extrapolation to the universe of establishments in the countries covered by the survey. This factor is provided for easier estimations of absolute figures (e.g. absolute number of establishments practicing risk assessments). It should be used for descriptive analyses only. For significance tests the above-mentioned caveat for "estprop" applies even more. In this mode of weighting all values are normally 1 or larger since each interview stands for at least one establishment in reality[25].

9.2.2 Employee-proportional weighting factors

The **employee-proportional weighting factors** "empwei", "empprop" and "empex" were calculated according to the same principles and the same caveats apply:

- The factor **"empwei"** is a factor that weights the data according to the structure of the universe of employees (in establishments with 5 or more employees) in a given country. It is scaled up to the total number of interviews made in the country, not to the number of employees in the universe.
  The factor "empwei" can be used for any analysis with the data of just one country. But it cannot be used for any international analysis because the size of the national samples is not proportional to the size of the universe.
- The factor **"empprop"** is based on the factor "empwei" and additionally adjusts for the disproportionality of the national sample sizes **for international analysis**. It is scaled to the number of interviews, not to the number of establishments in the universe.
- The factor "**empex"** produces the same percentage results as "empprop", but is an extrapolation to the universe of employees (in establishments with 5 or more employees).

9.2.3 Further hints on the usage of the different factors

The extrapolation weights "estex" or "empex" should not be used for multivariate analyses. By nature these weights lead to an extremely high number of cases. This has the effect that e.g. in a regression analysis almost all values become significant. This can be avoided by using the "estwei" or "empwei" weighting factors for this type of calculations in national analyses and the "estprop" or "empprop" weighting factors in international analyses.

For any bivariate cross-tabulations done with the statistics software SPSS, it is recommended to amend the command syntax by the order "/count asis" because the standard SPSS cross-tabulation command rounds values of less than 0,5 down to '0' and ignores them in the calculation. By adding the command "/count asis", the program considers the values including all positions after the decimal point.

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[25] In some very small countries (Iceland, Malta and Montenegro), the extrapolation factor for a few interviews in the data-set is slightly smaller than 1 (0,8 to 0,94). In theory, this is evidently not possible in a survey for which none of the units is interviewed more than once. The universe for the countries concerned by this is however an estimated universe. The estimates are based on general rules and observations which in single cases might not fully meet the reality. Moreover, as estimations were made on base of company statistics that are older than the survey the size of a company may have changed in the meantime. We decided not to adapt the universe figures in such cases, but to allow for the extrapolation factor being (slightly) below the value "1" in some very small countries.

9.3 Weighting principles

In the following, the weighting principles are illustrated using the establishment-proportional weighting factors. The employee-proportional factors "empwei", "empprop" and "empex" were calculated in the same way as the establishment-proportional factors with the only difference that the variables N_{ijY}, N_{totY} and N_{tot_europe} refer to the number of employees in the universe, not to the number of establishments.

In the weighting process, basically the number of interviews in the net sample in each cell of the weighting matrix is put into relation to the total number of establishments in the universe according to the available statistics in the same cell.

The establishment-proportional factors are calculated as follows:

- Country-specific post-stratification weight **"estwei"**, adjusted to the number of net interviews

  The correction factor "estwei" adapts the actual structure of the net sample to the target structure of establishments in the universe, summing up to the total number of interviews made in the country.
  $estwei_{ijY} = N_{ijY} / n_{ijY} * n_{totY} / N_{totY}$
  with $\sum estwei_{ijY} = n_{totY}$

- Internationally adjusted post-stratification weight **"estprop"**

  Like the factor "estwei", "estprop" is a weighting and not an extrapolation factor. Other than "estwei", it takes into account the different sizes of the national net samples in relation to their actual share in the universe. The factors sum up to the total number of interviews made in all surveyed countries together. At a local level the sum of the factors differs to some degree from the actual national net sample size.
  $estprop_{ijY} = estwei_{ijY} * N_{totY} / n_{totY} * n_{tot\_europe} / N_{tot\_europe}$
  or $estprop_{ijY} = N_{ijY} / n_{ijY} * n_{totY} / N_{totY} * N_{totY} / n_{totY} * n_{tot\_europe} / N_{tot\_europe}$
  or $estprop_{ijY} = N_{ijY} / n_{ijY} * n_{tot\_europe} / N_{tot\_europe}$
  with $\sum estprop_{ijY} = N_{tot\_europe}$

- Post-stratification extrapolation weight **"estex"**, adjusted to the total number of establishments in the universe

  The correction factor "estex" adapts the actual size of the net sample to the target size of the universe. Since this factor extrapolates to the total number of establishments, country-specific results automatically reflect the actual size of the country within the total European universe.

  $estex_{ijY} = N_{ijY} / n_{ijY}$
  with $\sum estex_{ijY} = N_{totY}$

In the formulae above the variables are defined as follows:

N_{ijY} = total number of establishments in cell ij of the weighting matrix in the universe of country Y

n_{ijY} = total number of completed interviews in cell ij of the weighting matrix in country Y. Please note tht in the screener countries the subsidiaries interviewed are taken into account by their design weight in this sum. The design weight corrects for the lower selection probabilities of the subsidiaries and is equal to the number of eligible subsidiaries of the originally selected multi-site company (limited to a maximum of 5).

n_{totY} = total unweighted net sample size in country Y

N_{totY} = total number of establishments in country Y

n_{tot_europe} = total unweighted net sample size in Europe (i.e. in all countries involved)

N_{tot_europe} = total number of establishments in Europe (i.e. in all countries involved)

In order to avoid individual factors becoming too large by applying this procedure, upper and lower factor limitations were introduced. These were handled individually for each type of weighting factor per country, taking into account the respective structures of the net sample and the universe.

9.4 Weighting steps

In order to get the best possible results, each of the 36 countries was weighted individually in a multi-step iterative procedure. In terms of substance a fine differentiation by sectors is important for ESENER since the type of activities done in an establishment determine to a considerable degree the kind and degree of health and safety risks involved in the work.

9.4.1 General weighting procedure (applied to all countries except for the United Kingdom)

The following procedure was applied:

(1) Definition of the weighting matrix

In all countries except for the United Kingdom, a 76-cell matrix consisting of the 19 relevant NACE Rev 2 sectors at 1-digit level by the 4 size-classes was used as starting point.

Table 33: Weighting matrix

NACE Rev. 2 section	5 to 9 employees	10 to 49 employees	50 to 249 employees	250 or more employees
A				
B				
C				
D				
E				
F				
G				
H				
I				
J				
K				
L				
M				
N				
O				
P				
Q				
R				
S				

(2) Control and revision of the 76-cell matrix

The matrix showing the distribution of the net interviews achieved in the country was analysed and compared to the figures for the universe. Cells that were empty in the sample but not in the universe and cells with only very few interviews as compared to the universe then were pooled with the neighbouring cell in order to limit the range of weighting factors and to minimise the risk of outliers, i.e. that just one or two single interviews represent a too large number of entities in the entire universe.

If necessary, cells of two or more sectors within a sector group and the same size-class were pooled. There was no pooling of cells belonging to different sector groups. In some cases it was necessary to further pool cells of different size-classes when all the cells of a sector group within the size class were already pooled.

Checking of the weighting matrix and combination of cells was made separately for the establishment-proportional weighting and for the employee-proportional weighting. The ratio of net interviews and the target number in each cell may significantly vary between the two perspectives. The combination of cells is documented in detail in the Annex.

(3) Weighting

On the basis of the revised 76-cell matrix the six weights were calculated for each country, as described in 9.3 above.

(4) Additional sector and size-class weighting

Pooling of cells may lead to marginal distribution of sectors and/or size-classes deviating from the universe structure. In order to fine-tune the sector structure at the NACE Rev. 2 1-digit level and

the size-class, additional sector weighting (without taking into account establishment size) and size-class weighting (without taking into account the sector) was applied. In principle the 19 relevant NACE Rev 2 sectors at 1-digit level were used in order to further adapt the net sample structure to the structure of the universe. However, in some countries with very small samples still some small sectors (such as NACE sectors B, D, E or L) had to be pooled.

Since weighting of sectors/size-classes in step (4) might affect the size structure, steps (3) and (4) were applied repeatedly in an iterative process.

The smaller a national sample size, the more likely it is that for this step still some small sectors (such as B, D, E or L) had to be summarized with others.

9.4.2 United Kingdom

For the United Kingdom, a large sample boost of 2.000 additional interviews was ordered from national funds. On the basis of the very large sample and the availability of sufficiently detailed statistical information on the universe it was possible to apply a more detailed breakdown by sector in the sampling and weighting procedure, allowing a more differentiated sector-specific analysis. For NACE C and Q, the breakdown of sectors goes beyond the 19 sectors at NACE REV. 2 1-digit level and includes further differentiations.

Therefore, the weighting in the United Kingdom was done with a differentiation by 25 sectors, with a further sub-division of NACE C into six sub-groups (C10+11; C 16,17,22,23,31; C19-21; C24-25; C29-30; C12-15,18, 26-28, 32-33) and a sub-division of NACE Q into 2 sub-groups (Q86 and Q87+88). In combination with the four size classes, this resulted in a weighting matrix of 25*4 = 100 cells.

Apart from this finer breakdown by sector, weighting of the data from the United Kingdom was done in the same way as described above.

9.5 Availability of statistical information and necessity of best estimates

The statistical information required for the sampling (definition of targets) and weighting was collected at the national level by the local fieldwork partners and was then centrally checked and compared. In most cases, the provided statistics originate from the respective national statistical office.

In a number of countries reliable statistical information is available only on the number and structure of enterprises/companies, but not on the number and structure of establishments/local units. In principle, national statistical institutes are asked by Eurostat to collect this information together with the enterprise/company figures for the SBS (Structural Business Statistics). But many countries do either not yet collect these data or they do not make them available or they are collected, but not in a differentiation by size.

Since the survey is to be conducted at the level of establishments in all countries, it also needs to be weighted on the establishment structures in order to maintain the full comparability of the data from the various countries.

Against this background, the lack of establishment statistics raises the necessity to do best estimates on the number and structure of establishments/local units for those countries where this information is not available from the national statistical office or from another reliable source (such as e.g. the provider of a representative database of business addresses).

Even in countries with available establishment statistics, best estimates turned out to be necessary for part of the structures because the available statistics showed blanks in certain sectors of activity (e.g. in NACE A or NACE O) or because the size-differentiation was not available in the required form. The latter applied in the smallest size-class where information was sometimes available only for establishments with 0 to 9 employees (i.e. including self-employed persons without any further employees) or for 1 to 9 employees, but not in the breakdown 5 to 9 employees. In addition, some smaller countries do not differentiate their statistics for the larger size-classes as needed for the survey (50 to 249 and 250+ employees), but only for a size-class 50+, 100+ or 150+. In these cases, best estimates had to be applied for concerned cells of the weighting matrix.

Before deciding on general principles to be applied for the estimates, TNS Infratest collected statistical information from a number of different sources and tested different approaches for their plausibility. Finally, the following principles for the best estimates were applied for ESENER-2:

(a) Countries where statistics are generally available on the distribution of enterprises/companies, but not on the distribution of establishments/local units

In these countries, best estimates on NACE sectors A to N as well as R and S were generally derived from the data available on the number and structure of enterprises/companies[26].. To this end, in a preparatory step, the company and establishment structures from countries where both company and establishment statistics were available were compared and an average company-establishment ratio was derived by this way, differentiated by sizes and sectors. This ratio was then applied to the company statistics .

Exceptions to this general rule were sectors of activity or size-bands for which the appropriate company-data was either not available or clearly unreliable (usually due to under-coverage). For these particular cells, estimates were not based on the company figures, but were derived from the Labour Force Survey (LFS) instead. LFS- based estimates were applied in the following cases:

- For the figures on the size and distribution of sectors O, P and Q. Though in some countries plausible company figures were available for at least some sectors (usually for NACE Q rather than for NACE O or P)[27], the LFS estimates were generally applied for NACE O, P and Q in all countries of this group (i.e. in all countries where only company statistics were available). This

[26] All EU countries collect this type of statistics and deliver them to Eurostat for their SBS (Structural Business Statistics). The only country for which no company-related data were available in an adequate differentiation (by sectors AND size-classes) was Montenegro.

[27] The company statistics of most countries for which estimates were needed do not cover these three sectors in sufficient completeness. Particularly entities in public ownership are often not registered or they are only registered as large "umbrella units", e.g. the Ministry of Education as organisation responsible for all public schools in the country.

ensures more homogeneity for the figures of these sectors, both from a national perspective (share of the sector within the national universe) and from an international perspective.
- For sectors A, K or any other particular sector where company figures were not available (in some countries, the SBS explicitly shows information on the "non-financial" enterprises only).
- For size-class 5 to 9 (all sectors) in those countries where only a breakdown for 0 to 9 or 1 to 9 was available.

In some particular cases, a deviation from these general rules for the estimates might have led to more accurate figures than the applied company-based estimates. It was however decided together with EU-OSHA that the coherent application of a set of rules for the estimates would be given priority over the implementation of the best possible solution for individual estimates.

(b) Countries with establishment statistics lacking particular information

The establishment statistics that were made available were usually more complete than the statistics on companies, especially as regards the coverage of entities from the public sector. Nevertheless, some of these statistics do also not cover particular sectors or they are available for slightly deviating size-classes only. In these cases, also best estimates were used to complete the data. For these, the following principles were applied:

- For sectors of activity which were not covered or clearly under-represented in the establishment statistics (NACE O, P, Q or A in some countries), data from the Labour Force Survey were used to complement the statistics.
- LFS-data were also used for size-class 5 to 9 (all sectors) in those countries where only a breakdown for 0 to 9 or 1 to 9 was available.
- In countries where the available breakdown was 1-5/6-9 employees, the figure on the share of establishments with 5 to 9 employees was estimated on base of the figures available for 6-9.

(c) Countries lacking any statistics on the distribution of establishments or companies

A specific case were countries where no information at all was available on the universe, neither from establishment or company statistics nor from the Labour Force Survey. This applies to Montenegro and to some sectors of the Serbian universe. In these cases, best estimates were derived from neighbouring countries, taking into account the differences in the general size of the labour force. This type of estimates is evidently considerably weaker than the other estimates since it assumes that the structure of the economy of two countries is identical, but in view of the total lack of suitable statistical information, there is no better solution to this.

A not on statistics on NACE A

Though NACE A is generally included in the statistics of most countries, the figures in the available sources often vary largely with regard to the size of the units and the number of employees working in the sector. For reasons of consistency, we used the official figures in the establishment or company statistics provided by the national statistical offices wherever these were available. In a number of countries these tend to under-estimate the size of the single establishments and the number of employees working in the sector.

9.6 The statistical sources used for the weighting

For NACE Rev. 2 sectors O (Public Administration), P (Education) and Q (Human Health and Social Work), estimates were derived from Labour Force Survey data because the company statistics of most countries for which estimates were needed do not cover these three sectors in sufficient completeness. As already mentioned, in particular entities in public ownership often are only registered as large "umbrella units", e.g. the Ministry of Education as organisation responsible for all public schools in the country, or are even not registered at all.

The table shown on the following pages shows the statistical sources used for the weighting. It also documents where estimates were necessary and on which source or principle these estimates are based. Table 34, spread over various pages, shows the sources used for the establishment-proportional weighting. The subsequent table (Table 35lists the sources used for the employee-proportional weighting.

Table 34: Statistical sources used for the establishment-proportional weighting

Country	Main source for statistical background information	Level of the information available from this source	Comments/Specific observations	Additional statistics used for particular sectors and/or size-classes	Estimates (overview)	Summary evaluation of the reliability of the available figures used for the weighting
AL	INSTAT (Statistical office of Albania) : company statistics, 2013	Companies/enterprises; Information on local units available only in a rough distribution by sector, no size-class differentiation	Company data available only for size-classes 5-9, 10-49 and 50+; distribution of 50+ to 50-249 and 250+ estimated; NACE S summarized to S,T,U and not available separately (T & U of marginal importance in a universe of 5+ employees)	no; in absence of any LFS data, for Albania the figures of the official company statistics were used for weighting O, P and Q ; OPQ figures in these company statistics plausibly high)	Distribution of establishments estimated on base of figures for the distribution of companies	medium
AT	Statistics Austria: Arbeitsstättenzählung 2011 (Census on local units)	Establishments/ local units ("Arbeitsstätten")	-	-	-	high
BE	Belfirst: company statistics, 2013	Companies/enterprises; statistics on the level of establishments/ local units also provided by Belfirst, but with clearly implausible values; therefore decision to apply estimates based on the company structures	-	LFS 2012 for estimates on NACE O, P and Q	Distribution of establishments estimated on base of figures for the distribution of companies; distribution of NACE O,P,Q estimated on base of LFS data	medium
BG	National Statistical Institute: Non-financial enterprises statistics 2011	Companies/enterprises	* company statistics shows no figures for NACE K (financial and insurance activities) *official company figures available for size 0-9 only, no further differentiation	LFS 2012 for estimates on NACE K, O, P and Q	* distribution of establishments estimated on base of figures for the distribution of companies; * distribution of NACE K,O,P,Q estimated on base of LFS data; * distribution of establishments in size 5-9 estimated on base of LFS	medium
CH	Federal office for statistics (Bundesamt für Statistik BFS): STATENT 2012 (provisional data)	Establishments/ local units ("Arbeitsstätten")	The number of establishments according to this statistics is comparatively high, but was used because of the generally high reliability of the STATENT statistics	-	-	high
CY	2011 Registry of Companies	Companies/enterprises	official company figures available for size 0-9 only, no further differentiation	LFS 2012 for estimates on NACE D, O, P and Q and for size 5-9	* Distribution of establishments estimated on base of figures for the distribution of companies; * distribution of NACE D,O,P,Q estimated on base of LFS data; * distribution of establishments in size 5-9 estimated on base of LFS	medium
CZ	Czech Statistical Office: company register, 12/2013	Companies/enterprises	-	LFS 2012 for estimates on NACE O, P and Q	* distribution of establishments estimated on base of figures for the distribution of companies; * distribution of NACE O,P,Q estimated on base of LFS data	medium
DE	Structures from the establishment Panel of the Federal Agency of Labour 2013	Establishments/ local units	The chosen source takes also employees into account that are not liable to social security insurance (400€ jobbers, civil servants) and was tehrefore preferred over the official statistics where these are not covered	LFS 2012 for NACE P	* distribution of NACE P (due to alleged under-coverage in the main statistical source used for the survey)	high
DK	Statistical Office: workplaces by region, time, industry and size 2012	Establishments/ local units	workplaces interpreted as roughly equivalent to establishments/local units	-	-	high
EE	Statistics Estonia and Business Register	Companies/enterprises	-	LFS 2012 for estimates on NACE O, P and Q	* distribution of establishments estimated on base of figures for the distribution of companies; * distribution of NACE O,P,Q estimated on base of LFS data	medium
EL	EL.STAT (National Statistical Office): company statistics 2010	Companies/enterprises	* figures for NACE K (financial and insurance activities) implausibly low (reference publication: EBF: European Banking Sector - facts and figures 2012) * figures for 2010 with size differentiation up to 99/100+ only; distribution on 50-249 and 250+ estimated on base of structures from statistics of 2007 where these size-bands were provided	LFS 2012 for estimates on NACE K, O, P and Q	* distribution of establishments estimated on base of figures for the distribution of companies; * distribution of NACE K, O,P,Q estimated on base of LFS data	medium

Country	Main source for statistical background information	Level of the information available from this source	Comments/Specific observations	Additional statistics used for particular sectors and/or size-classes	Estimates	Summary evaluation of the reliability of the available figures used for the weighting
ES	INE (National Statistical office), DIRCE Directorio Central de Empresas Unidades locales), 1/2013	Establishments/ local units	* no figures for NACE A and O provided by INE * figures for NACE P and Q cover public units only partly (under-representation)	LFS 2012 for estimates on NACE A, O, P and Q	distribution of NACE A, O,P,Q estimated on base of LFS data	high (medium for A, O, P, Q)
FI	Statistics Finland: establishments by industry and personnel size, 2012	Establishments/ local units	clear under-representation of NACE O, P and Q	LFS 2012 for estimates on NACE A, O, P and Q	distribution of NACE O,P,Q estimated on base of LFS data	high (medium for A, O, P, Q)
FR	INSEE (National statistical office): Sirene anonymisée, etablissements 2012	Establishments/ local units	statistics shows only size class 6-9 employees; figure for 5 employees estimated on base of given figures for size-class 6-9 and added	-	-	high
HR	Financial agency, fina.hr: company statistics, 2012	Companies/enterprises	-	LFS 2012 for estimates on NACE O, P and Q	* distribution of establishments estimated on base of figures for the distribution of companies; * distribution of NACE O,P,Q estimated on base of LFS data	medium
HU	Hungarian Centrral Statistical Office: company statistics, 2011		NACE O almost empty (14 units 5+)	LFS 2012 for estimates on NACE O, P and Q	* distribution of establishments estimated on base of figures for the distribution of companies; * distribution of NACE O,P,Q estimated on base of LFS data	medium
IE	CSO (Central Statistical Office; Bill Moss establishment statistics 2013 for NACE A & S and generally for size 5-9 (all sectors)	Companies/enterprises, establishments for some segments	* official company statistics available only for size-class 0-9, not for 5-9 * final decision to go for a mixture of the Bill Moss establishment statistics with establ. estimates based on the official company statistics; Bill Moss statistics not generally used because of some doubts about the reliability, but used for NACE A and S and for size 5-9 (all sectors)	* LFS 2012 for estimates on NACE O, P and Q * Bill Moss establishment statistics for size 5-9 and for NACE A & S	* distribution of establishments for NACE B to N, P and R estimated on base of figures for the distribution of companies; * distribution of NACE O,P,Q estimated on base of LFS data	medium
IS	National registry, 2012	Companies/enterprises	NACE O almost empty (14 units 5+)	LFS 2012 for estimates on NACE O, P and Q	* distribution of establishments estimated on base of figures for the distribution of companies; * distribution of NACE O,P,Q estimated on base of LFS data	medium
IT	ISTAT (National Statistical office): Census 2011	Establishments/ local units	statistics shows only size class 6-9 employees; figure for 5 employees estimated on base of given figures for size-class 6-9 and added	-	-	high
LT	Statistical office: The register of legal entities, 9/2012	Companies/enterprises	-	LFS 2012 for estimates on NACE O, P and Q	* distribution of establishments estimated on base of figures for the distribution of companies; * distribution of NACE O,P,Q estimated on base of LFS data	medium
LU	STATEC (National statistical office): business demography, 1/2012	Companies/enterprises	statistics does not show any figures for NACE A and O	LFS 2012 for estimates on NACE A, O, P and Q	* distribution of establishments estimated on base of figures for the distribution of companies; * distribution of NACE A, O,P,Q estimated on base of LFS data	medium
LV	Central Statistical Bureau of the Republic of Latvia: Local unit statistics 2011 (compiled for the project)	Establishments/ local units	Combination of 3 statistics: * local units of business entities * local units of state institutions * local units of foundations, associations and NGOs	-	-	high
ME	Company statistics and Central Register of Companies in Macedonia (see MK)	Companies/enterprises	There is no appropriate statistics available for Montenegro, only a statistics about the distribution of all (ca. 23.000) companies in Montenegro, without any size differentiation and including also self-employed	Company statistics from the neighbouring country Macedonia	All figures estimated on base of the figures from Macedonia, though taking into account the smaller size of Montenegro (30% of the values for MK); this estimate leads to figures which are plausible considering the given total number of employees, but a high statistical insecurity remains regarding the data for Macedonia; all efforts to get more data from MONSTAT remained unanswered	low
MK	Statitics on active business entitites by size and persons employed	Companies/enterprises	-	LFS 2012 for estimates on NACE O, P and Q and on size-class 5-9 (all sectors)	* distribution of establishments estimated on base of figures for the distribution of companies; * distribution of NACE O,P,Q estimated on base of LFS data * distribution of size-class 5-9 (all sectors)	medium

Country	Main source for statistical background information	Level of the information available from this source	Comments/Specific observations	Additional statistics used for particular sectors and/or size-classes	Estimates (overview)	Summary evaluation of the reliability of the available figures used for the weighting
MT	National Statistics Office (NSO): Business Demographics 2006-2011, data for 2011	Companies/enterprises	Smallest required size-class not available, delivered only as 1-9 employees	LFS 2012 for estimates on NACE O, P and Q and on size-class 5-9 (all sectors)	* distribution of establishments estimated on base of figures for the distribution of companies; * distribution of NACE O,P,Q estimated on base of LFS data * distribution of size-class 5-9 (all sectors) estimated on base of LFS data	medium
NL	Nederlandse Kamers van Koophandel 2014	Establishments/ local units	NACE O almost empty (15 units 5+) and P also clearly under-represented; Q also likely to be somewhat under-represented (judgement on base of more detailed national statistics available about the number or personnel working in the sector and on base of the LFS data)	LFS 2012 for estimates on NACE O, P and Q	* distribution of establishments in NACE O,P,Q estimated on base of LFS data	high (medium for O, P, Q)
NO	DM Huset firm database: Establishment statistics, 2014	Establishments/ local units	-	-	-	high
PL	National Statistical Office: REGON register, 12/2013	Companies/enterprises	Smallest required size-class not available, only as 0-9 employees	LFS 2012 for estimates on NACE O, P and Q	* distribution of establishments estimated on base of figures for the distribution of companies; * distribution of NACE O,P,Q estimated on base of LFS data * distribution of size-class 5-9 (all sectors) estimated on base of LFS data	medium
PT	INE (Instituto Nacional Estatistica): Sistema de Contas Integradas das Empresas 2011, updated 05/2013	Companies/enterprises	No data available for NACE K and O	LFS 2012 for estimates on NACE K, O, P and Q	* distribution of establishments estimated on base of figures for the distribution of companies; * distribution of NACE K, O,P,Q estimated on base of LFS data	medium
RO	National Statistics Institute: Romanian Statistical Yearbook; 2010	Establishments/ local units	* No establishment data available on sectors A, K and O * Figures for P and Q unrealistically low * No data on size-class 5-9 (only differentiation 0-9 employees) * Overall establishment figures for RS rather low compared to the labour force of the country; estimate of establishments on base of the LFS would come to considerably higher figures, but for consistency, the given establishment figures were used for the weighting, amended by estimates where necessary	LFS 2012 for estimates on NACE A, K, O, P and Q and for size 5-9	* distribution of NACE A, K,O,P,Q estimated on base of LFS data * distribution of size-class 5-9 (all sectors) estimated on base of LFS	medium, with some high quality elements (official local unit figures for several sectors), but also additional insecurities due to doubts about the coverage of the official register
RS	National Statistical Institute: http://webrzs.stat.gov.rs/WebSite/repository/documents/00/01/17/59/08_Structural_business_statistics.pdf, 2011	Companies/enterprises	* The sources does not provide any statistics by size on NACE sections A, K, O, P, Q, R and S (statistics on O, P, Q and R are provided in the Statistical Yearbook of the Republic of Serbia 2013, page 191, though without any size indication) * No data on size-class 5-9 available (only 0-9 employees)		* In absence of LFS data on Serbia, values for sectors A, K, O, P , Q, R and S were estimated on base of the neighbouring country Croatia, taking into account the difference in the size of the labour force (by the factor 1,37); the Serbian data for these sectors have an enhanced degree of statistical insecurity due to the described difficulties with regard to the definition of the size of the universe * Data for size-class 5-9 for sectors with available company statistics estimated on base of the company figures given for size-class 0-9 (15% of the values)	medium to low (due to lack of company data on several sectors and lack of LFS data for control purposes)
SE	SCB (Statistical Office Sweden): Establishmant statistics, 2013	Establishments/ local units	-	-	-	high
SI	Enterprise statistics of statistical office of Slovenia 2012 for size-classes 10-49, 50-249 and 250+	Companies/enterprises	Smallest required size-class not available, only as 2-9 employees	LFS 2012 for estimates on NACE O, P and Q; Ajpes, Agency of the Republic of Slovenia for size-class 5-9 (with the exception of values for NACE O, P, Q which were taken from the LFS)	* distribution of establishments estimated on base of figures for the distribution of companies; * distribution of NACE O,P,Q estimated on base of LFS data * distribution of size-class 5-9 (all sectors) estimated on base of Ajpes data about distribution of companies	medium
SK	Statistical Office of the Slovak Republic	Companies/enterprises	-	LFS 2012 for estimates on NACE O, P and Q	* distribution of establishments in NACE O,P,Q estimated on base of LFS data	medium
TR	Turkish Statistical Office: Workplace record, 2012	Companies/enterprises	No data available for NACE A and O	LFS 2012 for estimates on NACE A, O, P and Q	* distribution of establishments in NACE A, O,P,Q estimated on base of LFS data	medium
UK	Interdepartmental Business Register (IDBR) Register of the statistical office, 2013	Establishments/ local units	-	-	-	high

Table 35: Statistical sources used for the employee-proportional weighting

Country	Source of statistics for employee- proportional weighting	Short characterisation (summary)
AL	Estimate on base of the (assumed) distribution of establishments; not calibrated on LFS due to lack of LFS data for AL	estimate, **not** calibrated
AT	Statistics Austria: Arbeitsstättenzählung 2011 (Census on local units)	national census
BE	Estimate on base of the (assumed) distribution of establishments; calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
BG	Estimate on base of the (assumed) distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
CH	Federal office for statistics Bundesamt für Statistik BFS): STATENT 2012 (provisional data)	official figures, based on statutory register
CY	Estimate on base of the (assumed) distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
CZ	Estimate on base of the (assumed) distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
DE	Establishment panel of the IAB, the research institution of the Federal Agency for Labour's research institute, 2013	based on official figures
DK	Statistical Office: jobs at workplaces by unit, time, industry and size of workplace, 2012	official figures, based on statutory register entries
EE	Estimate on base of the (assumed) distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
EL	Estimate on base of the (assumed) distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
ES	Estimate on base of the distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
FI	Estimate on base of the distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
FR	INSEE (National statistical office): connaisance locale de'l appareil productif 2010; size-class 5-9 from LFS (not available from INSEE statistics; there only 1-9)	official figures; size 5-9 from LFS
HR	Estimate on base of the (assumed) distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
HU	Estimate on base of the (assumed) distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012 (Official figures on the distribution available from statistical office, but only for level of companies and not for all sectors)	estimate, calibrated
IE	Estimate on base of the (assumed) distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
IS	Estimate on base of the (assumed) distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
IT	ISTAT (National Statistical office): Census 2011; statistics shows only size class 6-9 employees; figure for 5 employees estimated on base of the number of employees in size-class 5-9 (partly estimated)	national census
LT	Estimate on base of the (assumed) distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
LU	Estimate on base of the (assumed) distribution of establishments; no calibration on LFS data because LFS data far too low for LU due to numerous commuters living in neighbouring countries but working in LU	estimate, **not** calibrated
LV	Central Statistical Bureau of the Republic of Latvia: Employees in local units 2011 (compiled for the project, combines 3 different sources, see comment on statistics on local units)	official figures, based on statutory register entries
ME	Estimate on base of the (assumed) distribution of establishments; not calibrated due to lack of LFS data for Montenegro	estimate, **not** calibrated
MK	Estimate on base of the (assumed) distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
MT	Estimate on base of the (assumed) distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated

Country	Source of statistics for employee- proportional weighting	Short characterisation (summary)
NL	Nederlandse Kamers van Koophandel 2014, except for NACE O, P and Q where LFS data were taken	official figures for NACE A-N, R & S, based on statutory register entries; estimate for NACE O, P & Q
NO	DM Huset firm database: Employees in establishments, 2014	official figures, based on register entries
PL	Estimate on base of the (assumed) distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
PT	Estimate on base of the (assumed) distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
RO	Estimate on base of the (assumed) distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
RS	Estimate on base of the (assumed) distribution of establishments; not calibrated due to lack of LFS data for Serbia	estimate, **not** calibrated
SE	SCB (Statistical Office Sweden): Employees in establishments, 2013	official figures, based on statutory register entries
SI	Estimate on base of the (assumed) distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
SK	Estimate on base of the distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
TR	Estimate on base of the distribution of establishments, calibrated on total of employees 5+ acc. to LFS 2012	estimate, calibrated
UK	UK Business: Activity, size and location 2013 (for NACE Rev.2 1-digit level), finer distributions estimated on base of statistics on establishment distribution, assuming the same average number of employees for all sub-sectors	official figures for NACE 1-digit level, based on statutory register entries; estimates for finer differentiations

10 Outcome of the weighting

10.1 Effectiveness of the weighting

The effectiveness is a measure for the deviation of the weighted structures from the unweighted structures: The larger the variance of the weights, the lower the effectivity. The closer to 100% the value for the effectiveness is, the better is the quality of the net sample.

For net samples without any deliberate disproportionality, effectivity rates of 70% or more are usually considered as very good. In samples with deliberate disproportionalities, differences between the unweighted sample structures and the weighted structures are naturally considerably larger. What can be considered as good effectivity values within such a disproportional design is difficult to determine – it largely depends on the degree of the introduced disproportionalities which in case of the size disproportionalities for ESENER-2 are large.

In view of these rather large disproportionalities, the average effectivity rate of almost 60% is certainly a good value and there are only very few cases with effectivity rates of less than 50% (Turkey, Romania, Malta and Greece).

Effectivity rates for the employee-proportional weighting are somewhat lower, with an average level of about 50%. Here, the values for the large countries (DE, FR, IT, PL) tend to be particularly good while the values for some very small countries (Albania, Iceland, Macedonia) are notably weaker.

Table 36: Effectiveness of the weighting, by country

Country	Establishment Proportional weighting (estex)	Employee Proportional weighting (empex)
	Effectiveness in %	Effectiveness in %
AL	58,25%	25,88%
AT	57,07%	53,39%
BE	62,31%	50,09%
BG	64,72%	59,27%
CH	53,53%	75,48%
CY	62,10%	34,99%
CZ	70,84%	50,05%
DE	50,90%	74,60%
DK	65,71%	63,02%
EE	65,55%	51,29%
EL	42,32%	30,32%
ES	66,56%	48,00%
FI	49,73%	44,94%
FR	70,62%	73,08%
HR	59,09%	54,83%
HU	57,22%	55,99%
IE	55,72%	67,86%
IS	63,06%	27,50%
IT	54,85%	76,86%
LT	59,34%	58,81%
LU	68,96%	37,83%
LV	64,83%	47,01%
ME	74,84%	25,20%
MK	51,45%	38,06%
MT	46,74%	39,25%
NL	64,76%	49,77%
NO	52,00%	28,82%
PL	51,84%	70,31%
PT	55,76%	56,97%
RO	48,74%	44,34%
RS	56,09%	55,22%
SE	72,60%	61,26%
SI	61,81%	35,17%
SK	63,19%	59,77%
TR	48,85%	52,92%
UK	59,45%	41,24%
Average	**59,21%**	**50,54%**

10.2 Comparison of unweighted and weighted sample structures

A country by country comparison of the weighted sample with the (partly estimated) figures on the universe shows that deviations are minimal[28]. In the weighting, priority was given to meeting the structures of the universe as well as possible. To this end, the original range limitation applied to the weighting factors was in individual cases opened.

10.3 Range of Weights

The range of weights resulting from the weighting procedure is often considered as an additional quality criterion. A large range implies a higher influence of the weighting on the survey data and thus also an enhanced risk that particular establishments whose situation might be not that typical for their size and sector may get too much influence on the results.

Due to the considerable disproportionalities between the sizes of the national samples and the structure of the universe, the absolute figures for the range of weights (from the smallest to the largest factor within the national sample) varies considerably in the internationally comparable weighting factors estex and estprop respectively empex and empprop. For an easier comparison of the national weights, therefore the ratio between the largest and the smallest weighting factor within the country is a more suitable measure for the variance of the weights. The measure has to be interpreted with care because only the two extremes (the smallest and the largest factor) are taken into account. These extremes might reflect just a few outliers[29]. We nevertheless show this ratio because it provides an easy illustration of the dimensions to which the weights may vary: The ratio of 58,1 in Spain means for example that the interview with the largest weight received a weight about 58 times as high as the interview(s) with the smallest weight.

These differences may appear high, but are a result of the disproportionalities by size. Differences between the largest and the smallest weighting factor are much smaller if comparing only weights from the same size-class within a country.

Within the entire sample with all 36 countries, the range of weights in ESENER-2 is obviously very high since here, all types of disproportionalities in the sampling (disproportionality by country and size for all countries; disproportionality by sectors for the United Kingdom with its sample boost) and the screening weights (for subsidiaries of multi-site organisations) apply and add up to a huge range of factors.

In the overall data-set, the establishment extrapolation weighting factors range from 0,8045 to 4.264,1123. This means a ratio of 5.300 between the largest and the smallest weighting factor. The smallest factor of 0,8045 is attributed to 4 interviews of the largest size-class from NACE O (Public Administration) from Iceland, a very small country with an estimated universe of just about 5.600 establishments with 5 or more employees. The largest factor of 4.264,1123 is attributed to 2

[28] Due to the large size, the Excel sheets with the comparison of the extrapolated structures with the figures on the universe is not attached to this report, but delivered separately to EU-OSHA in form of an Excel file.

[29] Though weighting factors were generally limited, in individual cases larger ranges in the factors were taken into account if the structure of the universe otherwise would not have been met sufficiently well.

interviews of the smallest size-class from Turkey, one of the largest countries in the sample, with an estimated universe of ca. 610.000 establishments with 5 or more employees. The large weighting factor for these two Turkish interviews is the result of a combination of various factors:

- Weights for the smallest size-class are generally highest because the disproportionalities by size that have to be redressed are largest in this size.
- Due to general difficulties to sample the agricultural sector and in particular the smallest units within this sector, there was a large difference between the targeted number of interviews for this cell and the number of achieved interviews.
- As one of the largest countries (with a universe of establishments 5+ of ca. 115 times the universe of Iceland), Turkey receives a large factor for redressing the disproportionalities between countries.

On the country level, the range of weights is considerably lower, as Table 37 illustrates. The table shows both the range of the weights per country and the ratio between the largest and the smallest weight attributed to an interview in the national ESENER-2 sample. The ratio shows how many times more the largest weight is compared to the lowest weight. For a quick comparison between countries, the ratio is the more suitable indicator.

The highest ratio between the largest and the interview with the smallest attributed establishment-proportional weight can be observed in Switzerland, where this ratio amounts to 364,5. The lowest ratio is reported for the Czech Republic, with a value of 46,9. The average ratio of the values from all 36 countries is 117. For the employee-proportional perspective, the ratio is highest in Slovenia (321,1) and lowest in France (9,9). For this perspective, the average ratio is slightly lower at 95,2.

Table 37: Ratio between largest and smallest weight, by country and type of weights

Country	Establishment-proportional weighting (estex)	Employee Proportional weighting (empex)
	Ratio (Largest factor/ smallest factor)	Ratio (Largest factor/ smallest factor)
AL	78,6	89,6
AT	152,8	52,2
BE	92,6	81,6
BG	113,4	97,4
CH	364,5	24,5
CY	71,3	238,9
CZ	46,9	94,5
DE	122,7	43,5
DK	106,9	34,0
EE	72,6	55,1
EL	146,9	140,2
ES	58,1	55,3
FI	95,7	95,3
FR	88,3	9,9
HR	79,9	67,9
HU	129,8	92,8
IE	84,5	56,4
IS	90,1	88,4
IT	128,0	41,3
LT	186,0	48,9
LU	49,3	136,2
LV	188,4	179,5
ME	48,5	89,7
MK	90,9	92,3
MT	99,5	79,5
NL	72,5	51,4
NO	79,2	79,0
PL	145,2	138,0
PT	181,9	89,9
RO	203,1	105,6
RS	89,2	75,8
SE	80,1	52,4
SI	93,7	321,1
SK	87,2	35,4
TR	309,7	127,7
UK	85,7	265,6
Average	**117,0**	**95,2**

11 Comparison of sampling and weighting between ESENER-1 and ESENER-2

Though in the preparation of the new version of ESENER it was decided not to maintain any questions from ESENER-1 as direct trend questions, it is useful to know in how far both surveys are comparable as regards the methodology. Therefore, here we shortly summarize the differences between both surveys.

Sampling procedures

The general sampling principles were for both surveys basically the same: In both ESENER-1 and ESENER-2, probabilistic samples were drawn in a multi-stratified sampling procedure with targets set for each cell of the sampling matrix. There are however some differences in detail:

- ESENER-1 used a 15 cell matrix (defined by 5 size-classes and 3 broad sector groups). For ESENER-2 a 28-cell matrix with a much finer sector differentiation was used while the number of size-classes was slightly reduced (matrix defined by 4 size-classes and 7 sector groups).
- In ESENER-1, the Producing Industries were oversampled to a certain degree. For ESENER-2, it was decided with EU-OSHA not to introduce any sector disproportionalities (except for the United Kingdom and Slovenia where sector disproportionalities were introduced to the boost interviews).
- For ESENER-1, the targets were roughly distributed among the cells of the sampling matrix, hereby considering criteria such as the limited availability of sample in the largest size-classes. For ESENER-2, targets were in a first step mathematically calculated on base of the available establishment and employee statistics as a mixture of establishment and employee-proportionality. In a second step, adaptations were made where national fieldwork partners considered certain targets (particularly those for size-class 250+) as not feasible.
- ESENER-1 was sampled locally by each national fieldwork institute, samples for ESENER-2 were drawn centrally by the central sampling unit in order to increase the degree of comparability and as a measure to get to more homogeneous and (in tendency) higher response rates.

In summary, these differences are differences in organisational details, the design applied for ESENER-2 being more sophisticated, but not fundamentally different.

Screening

In both survey waves, a screening procedure was applied in order to get an establishment level out of company-based address registers wherever no genuine establishment-based registers were available. Some important details of the procedure were however modified:

- In ESENER-1, only one interview was conducted in each organisation identified as multi-site organisation during the screening. This unit was randomly selected among all units the organisation indicated to have within the defined universe (the headquarters and its subsidiaries).
- In ESENER-2, efforts were made to get two interviews in multi-site organisations of screening countries. The first interview was made with the firstly contacted unit (normally the headquarters), the second interview was made with another randomly selected unit of that organisation.

The advantage of this new screening procedure is that by this way more units from multi-site organisations have the chance to be interviewed. A drawback is that among the multi-site units, there is a higher share of headquarters to be expected because in each case, the firstly contacted address is interviewed (if it has 5 or more employees), while for the 2nd addresses asked during the interview, there is a considerably higher risk of non-response.

The applied modifications do not alter the screening results substantially. The main effect is that for ESENER-2, in the screening countries in tendency a broader share of the net interviews is carried out in multi-site organisations.

Weighting

As for the weighting, also basically the same processes were applied. In both waves, an establishment- and an employee-proportional weighting factor was calculated and in both cases, to this end a weighting matrix with figures on the universe was used to which the interviews in the net sample were scaled. The main differences between both survey waves in terms of the weighting are:

- In ESENER-1, a 15-cell matrix was used for the weighting. In ESENER-2, a much more refined 76-cell matrix was used wherever the number of net interviews per cell of the matrix allowed for this. Only in a few very small countries, the differentiation had to be substantially reduced. But even there, still the 28-cell differentiation as used for the sampling and monitoring was used.
- The most significant difference between both survey waves in terms of weighting is the change with regard to the principles applied for getting best estimates on establishment figures wherever these were not (or not in a reliable form) available from official sources. While all estimates in ESENER-1 were basically based on Labour Force Survey data, in ESENER-2 the official national company statistics were used as basis for the estimates. Both approaches were discussed in detail with EU-OSHA in the sample preparation process and the decision for this switch was taken jointly.

  Reasons for the switch were on the one hand the much better quality and availability of company statistics in 2014 as compared to the situation in 2008/09 where these statistics were less complete and/or less reliable for a number of countries. On the other hand, various tests trying to verify the estimated figures have shown that this new way of generating estimates lead to figures that seem to be closer to the real national universes as far as this can be judged on base of the available material than estimates based on the Labour Force Survey.

In sum, the weighting applied to ESENER-2 is much more detailed and differentiated than the weighting applied to ESENER-1. The changes in the weighting process as such do however not lead to fundamental differences between both survey waves. The switch in the estimation procedures applied for the countries lacking genuine statistical data on the establishment level does however have some notable impact: For some countries, the total size of the universe and/or the size and sector structures have changed not only marginally by this.

12 Data

12.1 Data structure

The data of ESENER-2 are delivered in one integrated SPSS data-set containing the data of all 36 participating countries. All variables and values are labeled in English language.

The data set also contains some additional variables built on base of information from the data-set and aimed at facilitating its use.

12.2 Data processing and cleaning steps

The data collected for ESENER-2 were subject to several checks on technical correctness and consistency:

Check of the pilot survey data on any technical issues

One of the aims of the pilot survey was to test the entire survey infrastructure and to detect any potential problems or mistakes. This also included the live test on the CATI and CAWI scripts and the data-files they produce as outputs. In order to detect any possible errors in these, a data checking syntax was programmed and applied to the pilot data-set. The checking syntax alerts e.g. if unforeseen codes appear in the data on a question or if data are missing. There were no such mistakes identified in the analysis of the pilot data.

Check of final scripts with dummy data

Between the pilot survey and the main survey, a number of changes were implemented in the CATI and CAWI scripts. Most of the changes were shortenings. A danger inherent to the shortening of questionnaires in already programmed and tested scripts is that the deletion of questions and items might lead to filtering mistakes. Therefore, the revised CATI and CAWI scripts foreseen for the main fieldwork phase were subject to thorough tests by both programmers and the coordination team. This included tests with dummy data fed into system in order to analyse the output on the correct storage of the variable and on any potential filtering mistakes. Any issues detected at this stage were corrected before the launch of fieldwork.

Weekly checks of interim data-sets in the main survey phase

Once fieldwork was started, data sets were checked regularly. In the starting phase, these checks were done twice a week, later they were done on a weekly basis. The aim of these checks was again to ensure that no filtering mistakes or other data processing mistakes occurred. Apart from some minor issues, at this stage one problem occurred in Poland: Due to a mistake in the classification of the address file prepared for the sample management system (missing code for "non-screening country), the first n = 110 cases from Poland did not receive the question on whether the unit is a single-site organisation or part of a multi-site organisation. These cases were set to "No answer" in the data-set.

Due to these checking steps done before and after fieldwork, there was little need for any posterior data-cleaning and corrections. In three countries, there was however some lack of clarity in the preparation and translation phase regarding the national terminology for the various employee representatives. This lead to some need for ex-post corrections. The corrective measures done in the data cleaning and editing are summarized in Table 38.

Table 38: Documentation of data cleaning and editing measures

Question No.	Country	Number of concerned interviews	Problem detected	Measure taken
Q051	CZ, AT	5	5 establishments found with q051=998, unplausibly high value	probably erroneous entries for "Don't know" which is often coded as "98" or "998" etc.; set to the value 5 (5 units with 5 or more employees) in the data-set because the no answer probably comes from organisations with many local units the number of which is not known to the respondents; 5 units is the limit for the entry factor used for multi-site organisations in screening countries
Q102	PL	110	Missing information in address data on filter variable for Q102, therefore this question was not asked in n=110 cases in Poland.	set to NA (9)
Q105, size	CH, DE, DK	4	Cases where Q105 is (much) larger than Q104	internet research on base of the address + correction of size-class where figures on the number of employees of this firms could be retrieved in the internet
Q104	MK	1	Unplausible value in Q104 compared to Q105	set to NA (99999)
Q105, size	CY, FI, LU, LV, MK, MT	10	In some sample cells of these countries,the number of interviews was too low for weighting; besides, the display of these data would have cause data protection issues	interviews from the concerned cells (250+ or sector A 10-49) were set to the next smaller size-class; this measure concerned only 10 interviews altogether
Q166, Q256, Q350, Q351, Q352	EL	all first 195	During fieldwork the local team detected that the term for health and safety committee (Q166_4) was identically also asked in Q166_1, the item foreseen for Works Council representation; though this was done following advice from national OSH experts, Q166_1 was corrected with the term for Works Council	all 102 interviews with the previous questionnaire version that were done in units with 10 or more employees or in multi-site units with 5 to 9 employees were recalled to get the missing answers on the Works Council term; the re-calls also concerned relevant follow-up questions (e.g. Q256); single-site establishments with 5-9 employees were not called back because there it was considered as extremely unlikely to have a Works Council; these cases were set to code 2 in Q166_1 (Works Council)
Q166, Q256, Q350, Q351, Q352	BG	all	Due to a mistake in the translation process (that was also not discovered in the later questionnaire checks done by national health and safety experts), only one of two terms proposed as appropriate Bulgarian equivalents of a “Works Council” were asked. The term that was asked is very broad (translating rather as “assembly of workers”) and there was a surprisingly high share of affirmative answers to this question. Due to doubts about the validity of the answers, all data on the concerned question (Q166_1) were set to sysmis (missing data).	Q166_1 set to missing and following variables corrected accordingly
Q166, Q256, Q350, Q351, Q352	EE	all	In Q166_1, instead of the term for "Works Council", the term for "Health and Safety Committee" was asked. The term "Health and Safety Committee" should have been asked in Q166_4, but this item was left empty on advice of national experts. In the data cleaning, the term for H & S Committee was set from Q166_1 to Q166_4. For the item on the "Works Council", no data are available and Q166_1 is therefore empty for Estonia.	values on Q166_1 set to Q166_4, Q166_1 set to missing and following variables corrected accordingly

12.3 Coding of sector corrections

The only open question the ESENER-2 questionnaire contained was Q113, the question asking for a description of the sector of activity in those cases where the sector attribution of the address source was considered incorrect (Q112=2 or 9).

After completion of fieldwork, the sector coding was done centrally at TNS Infratest Sozialforschung by a team of trained coding specialists. To this end, the sector description verbatims were extracted from the dataset and sent to a professional translation agency for translation into German language. The translation into German was necessary because TNS Infratest Sozialforschung maintains computer-aided tools that help to alleviate the coding process by pre-selecting verbatims into the appropriate sector category by using key words. These tools were programmed by TNS Deutschland GmbH and are not available in English.

The coding of the sector verbatims was previously tested in the pilot survey. The sector verbatim descriptions from the pilot data were analysed for their suitability for the posterior coding. Insufficient or misleading sector descriptions were selected and used as illustrating examples for an interactive training session on the coding during the face-to-face training seminar with supervisors and fieldwork managers from all countries. For usage in their interviewer briefings, these were also provided with the coding examples and all other material from the training seminar.

The later sector coding led to valid sector codes for at least the NACE Rev.2 1-digit level for about 97% of all interviews in which the sector was considered as not correct by the respondent. Only about 3% of the verbatims (n = 226 cases) could finally not be coded in a meaningful way. In these (few) cases, the sector code from the address register was used for the classification of the interview in terms of the sector of activity.

Table 39: Results of the coding of the verbatims on the sector correction

Base for the sector coding	in absolute figures	in %
Number of interviews/sector descriptions to be coded	7.181	100,0%
Coding result		
Coded sector description leads to the same NACE Rev.2 2-digit code as indicated in address source	2.004	27,9%
Sector code corrected at the NACE Rev.2 2-digit level	4.822	67,1%
Verbatim not codeable or empty	98	1,4%
Verbatim not clearly attributable to any level of the NACE classification (entries such as "services" or "office" without further specification)	128	1,8%
Verbatim not clearly attributable to a NACE Rev.2 2-digit code, but attributable to a 1-digit code	129	1,8%

All sector corrections were coded to NACE Rev.2, the European sector classification currently in use. In view of the abandonment of direct trend questions between ESENER-1 and ESENER-2, an

additional coding of the data collected in 2014 into the former Rev. 1.1 version of NACE was finally not considered necessary.

12.4 Hints on specific variables

Q104: Overall number of employees working at the establishment
Though this question was asked as numerical question, for reasons of data-protection the number of employees can be delivered only in a summarized form as size-classes (5-9, 10-49, 50-249 and 250+ employees).

Q104ad: Number of additional workers in the establishment (see also Chapter 12.5)
This variable shows the number of people that are regularly working at the establishment, in addition to the employees on the payroll of the establishment. The variable is calculated as difference between Q104 and Q105 (Q104 - Q105)[30]. For data protection reasons, the variable is delivered only in form of size-classes (1-4, 5-9, 10-19, 20-49 and 50+ employees).

Q104/Q105: Number of employees
Q104 was meant to measure the total number of people working in the establishment, including not only the employees on the payroll of the organisation, but also temporary agency workers, self-employed and other types of workers regularly working at the premises of the establishment. Q105, in turn, was meant to measure the number of the directly employed people only, i.e. those on the payroll of the establishment/organisation. Normally, one would expect the number of workers indicated in Q104 to be either the same or larger than the number provided in Q105. If this was not the case, respondents were asked to correct respectively verify the provided figures (Q105_check). In this control question, 75 respondents confirmed that the number of employees in Q105 to be larger than that in Q104. This confirmation of the respondent was accepted.

Q105: Number of employees on the payroll of the establishment
This question was also asked as numerical question and can for reasons of data protection be delivered in size-classes only (5-9, 10-49, 50-249 and 250+ employees). The definition of size-classes as used for sampling, weighting and cross-tabulations is based on this variable (Q105), i.e. it includes only employees directly paid by the establishment.

Sector variables
The data-set contains 3 different sector variables:

(1) Sectorgrp:
This sector variable reflects the sector summarizing of the 28-cell sampling matrix.
(2) Nace1_16:
This sector variable shows sectors on the level of the NACE Rev.2 1-digit level. For reasons of data protection, very small sectors are summarized in this variable so that the variable does not differentiate all relevant 19 NACE 1-digit categories, but only 16 categories. For reasons of data protection, this variable is the finest sector differentiation that can be made

[30] The n=75 establishments that indicated and confirmed that their number of employees in Q105 is larger than the number indicated in Q104 are classified as establishments with "no additional workers" in this variable.

available to researchers outside of EU-OSHA. The following NACE sections are summarized here:

- Sectors B, D and E were summarized to a sector group B D E
- Sectors K and L were summarized to a sector group K L

(3) Nace1:
This variable contains the full differentiation into 19 NACE Rev. 2 categories. It is available only to the researchers of EU-OSHA and for the national data-set delivered to the Spanish boost client[31].

For the national data-set issued for the United Kingdom, additionally a sector variable Nace1_25 is delivered which differentiates some 1-digit sectors into sub-sectors (as in the sampling and weighting).

Data sets delivered to individual countries may have finer sector differentiations, depending on the size of the national universe within small sectors of activity.

For the analysis of country results by individual sizes and/or sectors, we strongly advise to check the number of net interviews per cell beforehand. For small sectors in small countries, the number of interviews within a cell (defined by sector and/or size-class) is often too small as to allow for any generalization on this basis. If at all, in these cases only results for the entire sector should be analysed, without differentiation by size-classes.

Q166_1 to Q166_4:
Question Q166 contains country-specific terminology of different forms of employee representation. These terms were not translated by translators, but were provided by national health and safety experts within the respective country.

12.5 Newly calculated variables

The data-set contains a number of newly created variables meant to facilitate the use of the data-set. Some of these variables were also used for the analyses in the Technical Report and the Quality Report. All newly created variables from the data-set are documented in the table below, including the syntax with which they were created.

[31] The universe of establishments in Spain is large enough so that the possibility of de-anonymising individual establishments on base of the survey data is not given in this case.

Table 40: List of newly created variables in the data-set, incl. SPSS syntax

Name of the new variable	Description	Syntax (used with statistical software SPSS)
EU28	Variable differentiating between EU member states and non-member states	comp eu28=0. if any (countrystr,"be","bg","cz","dk","de","ee","ie","el","es","fr","hr","it","cy","lv","lt","lu","hu", "mt","nl","at","pl","pt","ro","si","sk","fi","se","uk") eu28=1. var lab eu28 "EU member states". val lab eu28 0 "no" 1 "yes".
E1univ	Variable allowing to reduce the ESENER-2 data-set to the universe as defined for ESENER-1 (i.e. exclusion of size-class 5-9 employees and of NACE A)	comp E1univ=$sysmis. if (eu28=1 or any(countrystr,"tr","no","ch")) and q105>9 and nace1>1 E1univ=1. var lab E1univ "all establishments from Esener-1 countries with 10+ and without sector A (same as ESENER-1)". val lab E1univ 1 "10+ and no A".
Q051	Q051 grouped	recode q051 (1=1) (2=2) (3 thru 9=3) (10 thru 998=4) into q051gr. var lab q051gr 'Establishments with 5 or more employees'. val lab q051gr 1 '1' 2 '2' 3 '3 to 9' 4 '10+'.

Q100	Q100_1 to Q100_9 transformed into a single-punch question with the following categories:
	1 "Owner of a firm, managing director, site manager (Q100_1,2=1)"
	2 "Manager without specific OSH tasks (Q100_3=1 and Q100_1,2,4,5,6,7 not 1)"
	3 "Manager with specific OSH tasks (Q100_3=1 and Q100_4,5,6=1 and Q100_1,2,7 not 1)"
	4 "OSH specialist without managerial function (Q100_4,5=1 and Q100_1,2,3,6,7 not 1)"
	5 "Employee representative in charge of OSH (Q100_6=1 and Q100_1,2,3,4,5,7 not 1)"
	6 "External OSH consultant (Q100_7=1 and Q100_1,2,3,4,5,6 not 1)"
	9 "No answer (Q100_9=1)"
		comp q100=0.
		if any(1,q100_1,q100_2) q100=1.
		do if q100=0 and q100_3=1.
		  if any(1,q100_4,q100_5,q100_6) q100=3.
		  if not any(1,q100_4,q100_5,q100_6) q100=2.
		else if q100=0.
		  if any(1,q100_4,q100_5) q100=4.
		else if q100=0.
		  if q100_6=1 q100=5.
		else if q100=0.
		  if q100_7=1 q100=6.
		else if q100=0.
		  if q100_9=1 q100=9.
		end if.

Q102all	Q050 and Q102 integrated (identical questions; Q050 asked to screening countries, Q102 to non-screening countries)	recode q050 (1=1) (2=2) (8 9=3) into q102all. recode q102 (1=1) (2=2) (8 9=3) into q102all. var lab q102all 'Q050+Q102: Single organisation or one of several establishments'. val lab q102all 1 'A single company or organisation' 2 'One of a number of different establishments' 3 'Don`t know/No answer'.
Q103all	Q103a and Q103b integrated (identical questions; Q103a asked to non-screening countries, Q103b to screening countries)	comp q103all=$sysmis. if q103a>0 q103all=q103a. if q103b>0 q103all=q103b. var lab q103all 'Q103a+Q103b: Is this the headquarters or is it a subsidiary site?'. val lab q103all 1 'Headquarters' 2 'Subsidiary site' 9 'No answer'.
Q104ad	Difference between Q105 and Q104: This newly created variable shows the number of additional workers that are not directly paid by the interviewed establishment. It is created by subtracting the number of employees on the payroll (Q105) from the total number of all employees working at the establishment. For reasons of data-protection, the figure is provided only in a grouped form	comp q104ad=q104-q105. if q104=99999 q104ad=$sysmis. recode q104ad (lo thru 0=1) (1 thru 4=2) (5 thru 9=3) (10 thru 19=4) (20 thru 49=5) (50 thru hi=6). if q104=99999 q104ad=9. var lab q104ad "non-payroll workers (in addition to Q105)". val lab q104ad 1 "no additional workers" 2 "1 thru 4" 3 "5 thru 9" 4 "10 thru 19" 5 "20 thru 49" 6 "50 and more" 9 "no answer on Q104".
Q104gr	Q104 grouped	recode q104 (1 thru 4=1) (5 thru 9=2) (10 thru 49=3) (50 thru 249=4) (250 thru 99998=5) (99999=9) into q104gr. var lab q104gr 'People working at this establishment'. val lab q104gr 1 '1-4' 2 '5-9' 3 '10-49' 4 '50-249' 5 '250+' 9 'No answer'.
Q105gr	Q105 grouped (this variable is identical with the variable "size")	recode q105 (5 thru 9 =1) (10 thru 49=2) (50 thru 249 =3) (250 thru 99998=4) into q105gr. var lab q105gr 'Directly employed people'. val lab q105gr 1 '5-9' 2 '10-49' 3 '50-249' 4 '250+'.
Q115gr	q115 and q115x integrated	recode q115 (0 thru 1989=1) (1990 thru 2005=2) (2006 thru 2010=3) (2011 thru 2014=4) (9999=9) into q115gr. if q115=9998 q115gr=q115x. var lab q115gr 'Founding year of the establishment'. val lab q115gr 1 'Before 1990' 2 '1990 to 2005' 3 '2006 to 2010' 4 'After 2010' 9 'No answer'.
Q164all	Q164a and Q164b integrated (basically the same questions; Q164b asked to owners or managing directors etc. of an establishment, Q164 to other types of respondents)	comp q164all =$sysmis. if q164a>0 q164all=q164a. if q164b>0 q164all=q164b. var lab q164all 'Training recieved on health and safety'. val lab q164all 1 'Yes' 2 'No' 9 'No answer'.
Q254gr	Q254 grouped	recode q254 (lo thru 2009=1) (2010=2) (2011=3) (2012=4) (2013=5) (2014=6) (9998=8) (9999=9) into q254gr. var lab q254gr 'Year of last risk assessment'. val lab q254gr 1 'before 2010' 2 '2010' 3 '2011' 4 '2012' 5 '2013' 6 '2014' 8 'don´t know' 9 'no answer'.

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ANNEXES:

English language master questionnaire

TNS Infratest
Sozialforschung

2nd European Survey of Enterprises on New and Emerging Risks

ESENER-2

Final Master Questionnaire

Master Version for the

Main Survey

June 2014

Basic structure of the questionnaire

A. Contact phase 3
B. Introductory questions (part of background information) 17
C. Day-to-day health and safety management Part I: Available expertise and general policy 22
D. (Traditional and new) health and safety risks in the establishment 26
E. Day-to-day OSH management Part II: Risk Assessments 28
F. New risks: Psychosocial risks and Musculo-skeletal disorders 33
G. Employee participation in OSH issues 37
H. Sources of support 40
I. Final background questions 41

PLEASE NOTE:

Questions which are to be read out are printed in ***bold face.***

All answers that must not actively be read out are marked with two fences: ##. These items are to be offered only if it becomes clear that the respondent's answer would not fit well into the answer options that are provided.

If multiple answers are allowed, answer items are lead by numbers: _01), _02), _03) etc. otherwise only one single answer is to be given.

Instructions to the interviewers are printed in boxes and italics.

Instructions to the programmers are printed in italics.

Not all questions have to be answered by each respondent. Filters are set out before the questions (entry filters). They are in [red font and square brackets]. If there is no filter the question which immediately follows is to be asked.

Hints for the programmer and filtering instructions were not translated into national languages because the questionnaire was programmed centrally. The chapter headings were also not translated because they were not part of the programmed script, but are introduced on this paper version for an easier orientation.

A. Contact phase

[To all respondents in first contact (with the telephone number indicated in the address register]

Q001

Good morning / afternoon. My name is … from <INSTITUTE> in <location of institute>. We are conducting the European survey on health and safety. For our interview I would like to speak with the person who knows best about health and safety in this establishment.

[If number of employees < 50 (all sectors)]

Often this person is the managing director or branch manager.

[If number of employees ≥ 50 and NACE 2-digit = 01 through 44]

Often this person is the technical director or personnel manager.

[If number of employees ≥ 50 and NACE 2-digit = 45 thru 96]

Often this person is the personnel manager.

Interviewer: Stress as necessary:
- The survey is conducted on behalf of the European Agency for Safety and Health at Work. The Agency is an autonomous body of the European Union that provides information to improve health and safety at work.
- The questions are about health and safety policies and practices in your establishment.
- Good health and safety at work is an increasingly important issue and is a key factor in the success of the European economy. Participation in the survey will help to provide better information and assistance to workplaces. This contributes to improving safety measures and health protection of employees.
- Results will be used to support workplaces and to improve legislation.
- Details are available online at the esener.eu website. First results will be published there at the beginning of 2015.

The respondent is this person	(1)	go to Q004a
Appointment for later call	(2)	take up time for recall**
Respondent puts through to another person	(3)	go to Q003
Respondent names another person to call	(4)	take up name & tel.**
Refused	(5)	END1
Motivation letter	(9)	take up Email

*** then go to END2*

[If second interview within a multi-site organisation in a screening country]

Q002

Good morning / afternoon. My name is … from <INSTITUTE> in <location of institute>. We are conducting the European survey on health and safety at work.

We have already conducted an interview with your head office and would like to speak with someone in your local branch regarding the same subject. Are you the person who is responsible for health and safety at this establishment?

Interviewer: (add if being asked about the first interview): The first interview was conducted with the person responsible for health and safety at the head office of this company or organisation. Person named in previous calls: _____

Respondent is this person	(1)	go to Q004b
Respondent puts through to another person	(2)	go to Q002 again
Respondent names another person to call	(3)	take up name & tel.**
Refused	(4)	END1
Motivation letter	(9)	take up Email

*** then go to END2*

[If new contact with a person named in previous call(s)]

Q003

Good morning / afternoon. My name is … from <INSTITUTE> in <location of institute>. We are conducting the second European survey on health and safety at work. For this interview I would like to speak with the person who knows best about health and safety in this establishment. Are you this person?

Respondent is this person and OK to continue	(1)	go to Q004a
Appointment for a later call	(2)	take up time for recall**
Respondent puts through to another person	(3)	go to Q003 again
Respondent names another person to call	(4)	take up name & tel.**
Refused	(5)	END1
Motivation letter	(9)	take up Email

*** then go to END2*

[If Q001 or Q003 = 1]

Q004a

The survey is conducted in cooperation with the European Agency for Safety and Health at Work and TNS Infratest in Munich. Participation is of course voluntary.

Interviewer: Your workplace has been selected at random to represent its sector and size. To obtain representative results, however, it is important that as many of the selected establishments as possible take part.

All data will be treated with absolute confidentiality and the results will be totally anonymous. Would you be so kind as to participate in this interview?

OK to conduct interview right now	(1)	go to FILT050
Appointment for a later call	(2)	take up time for recall**
Refused because health and safety is managed at the headquarters of the organisation, not at the local level	(3)	go to Q005
Refused because health and safety services are outsourced to a service provider	(4)	go to Q006
Does generally not participate in telephone interviews	(5)	go to Q007
Refusal for other reasons	(6)	END1
Motivation letter	(9)	take up Email

**Optional text element*
*** then go to END2*

[If Q002 = 1, i.e. if second interview within a multi-site organisation in screening country]

Q004b

The survey is conducted in cooperation with the European Agency for Safety and Health at Work and TNS Infratest in Munich. Participation is of course voluntary.

Interviewer: To obtain representative results, however, it is important that as many of the selected establishments as possible take part.

All data will be treated with absolute confidentiality and the results will be totally anonymous. Would you be so kind as to participate in this interview?

OK to conduct interview right now	(1)	go to FILT050
Appointment for a later call	(2)	take up time for recall**
Refused because health and safety is managed at the headquarters of the organisation, not at the local level	(3)	go to Q005

Refused because health and safety services are outsourced to a service provider	(4)	go to Q006
Does generally not participate in telephone interviews	(5)	go to Q007
Refusal for other reasons	(6)	END1
Motivation letter	(9)	take up Email

**Optional text element*
*** then go to END2*

[If Q004a or b = 3]

Q005

Even if health and safety activities are mainly dealt with at your head office, there should normally be somebody at the local level who has some information about this subject. The questions are of a general nature and do not require specialized knowledge on the topic. May I speak with the person who is best informed regarding the subject at this branch?

Respondent is this person and OK to continue	(1)	go to Q050/Q100
Appointment for a later call	(2)	take up time for recall**
Respondent puts through to another person	(3)	go to Q003 again
Respondent names another person to call	(4)	take up name and tel.**
Refusal maintained	(5)	END1

*** then go to END2*

[If Q004a or b = 4]

Q006

Even if health and safety issues are mainly dealt with by an external service provider, there should normally be somebody at the local establishment who has some information about this subject. This is normally the managing director or another executive who is in contact with the external service provider.

Respondent is this person and OK to continue	(1)	go to Q050/Q100
Appointment for a later call	(2)	take up time for recall**
Respondent puts through to another person	(3)	go to Q003 again
Respondent names another person to call	(4)	take up name and tel.**
Refusal maintained	(5)	END1

*** then go to END2*

[If Q004a or b = 5]

Q007

You mention how you generally don't participate in telephone interviews. Would you be willing to complete the questionnaire in an online version instead?

Yes	(1)	go to Q008
No	(2)	go to END1
No answer	(9)	go to END1

[If Q007 = 1]

Q008

Would you please be so kind as to give me your email address so that we can send you the online version of the questionnaire?

Email address: _____

Refused	(9)	go to END1

END1

Thank you for your time, nevertheless. Good bye.

Interviewer:: End call ( )END (no further call; record non-response reason).

END2

Thank you for your help. Good bye.

Interviewer:: End call .....( ) END (try again later, start with Q001).

TURKEY, HUNGARY AND MONTENEGRO – ADDITIONAL QUESTIONS ON THE SECTOR OF ACTIVITY

[Asked only in Hungary and Turkey, and in Montenegro if no sector information available from the address]

Q030

Which of the following is the main activity of your company or organisation?

Interviewer::

The main activity is the activity with which a firm mainly earns its money: For non-profit organisations it is the activity to which most working hours are dedicated. Text in [ ] brackets is optional.

	F1 Code	NACE 1-digit
The manufacturing of any products	1	C; go to Q031
Construction [NOT including architectural or engineering services]	2	F
Agriculture, fishing or forestry	3	A
Elecricity, gas, steam and air conditioning	4	D
Water supply, sewerage or waste management	5	E
Mining and quarrying or	6	B
Any other type of economic activity	7	Go to Q032

If Q030 = 2,3,4,5 or 6: Continue with FILT050

[If Q030 = 1]

Q031

Which type of products does your company <u>mainly</u> produce?

Food, beverage or tobacco products	1	C1 (10-12)
Textile and leather products	2	C2 13-15
Petroleum, chemical, pharmaceutical, mineral or plastic products	3	C3 19-23
Metal and metal products, machinery, vehicles and other transport equipment [such as aircrafts or boats]	4	C4 24, 25, 28-30
Or any other products	5	C5 16-18, 26, 27, 31-33

Continue with FILT050

[If Q030 = 7]

Q032

And which of the following other types of activity is your firm carrying out as <u>main activity</u>?

Wholesale or retail trade	1	G1
Travel agency or tour operator	2	N1
Accomodation and food services [incl. hotels, restaurants, bars or catering]	3	I
Transportation and storage [of persons or goods, incl. postal services]	4	H
Telecommunication and IT services	5	J1
Real estate, finance and other business service	6	Go to Q033
Education [at all levels]	7	P
Health and social services	8	Go to Q034
Public administration and compulsory social security [includes also police, defence, and justice activities]	9	O
Other Services	10	Go to Q035

If Q032 = 1,2,3,4,5,7 or 9: Continue with FILT050

[If Q032 = 6]

Q033

And which of the following more detailed descriptions meets your main activity best?

Bank and insurance activities	1	K
Real estate activities	2	L
Legal, tax and business consultancy	3	M1
Call centre, employment agency or business support activities	4	N5

Continue with FILT050

[If Q032 = 8]

Q034

And which of the following more detailed descriptions meets your main activity best?

Human health	1	Q1
Social work and residential care	2	Q2
Veterinary activities	3	M5

Continue with FILT050

[If Q032 = 10]

Q035

Which of the following other services best describes your main activity?

Arts and entertainment [e.g. libraries, museums, sports, amusement or recreation activities]	1	R
Architectural and engineering services	2	M2
Publishing activities [e.g. of newspapers, books or software], video or sound production	3	J2
Repair of vehicles	4	G2
Repair of any other products	5	S1
Personal service activities [such as hairdressing, textile cleaning, funerals]	6	S2
Scientific research and development [including market research]	7	M3
Advertising, photography or translation	8	M4
Rental and leasing of any goods	9	N2
Private security and detective activities	10	N3
Cleaning and maintenance of buildings or landscapes	11	N4
Activities of political, religious or other membership organisations	12	S3
None of these	13	Go to END3

If Q035 = 1,2,3,4,5,6,7,8,9,10,11,12: Continue with FILT050

Special Screening Questions (asked in some countries only)

FILT050 (Filter before question Q050)

If country = AL, AT, BE, BG, CY, CZ, EE, EL, HR, HU, IS, LT, LV, ME, MK, MT, PT, RO, RS, SI, SK, TR, and first interview in multi-site organisation:
Go to Q050

If country = AL, AT, BE, BG, CY, CZ, EE, EL, HR, HU, IS, LT, LV, ME, MK, MT, PT, RO, RS, SI, SK, TR, and second interview in multi-site organisation (i.e. if Q002 was asked):
Go to Q100

If country = CH, DE, DK, ES, FI, FR, IE, IT, LU, NL, NO, PL, SE, UK:
Go to Q100

Q050_txt
Before starting with the actual interview, we have some questions that are important for statistical reasons.

[Asked to all]
Q050 (=Q102 in countries without screener)
Is this establishment a single organization, or is it one of several establishments at different locations in {{country}} belonging to the same company or organization?

A single company or organisation	(1)	go to Q100
One of a number of different establishments the organisation has in this country	(2)	go to Q051
## Don't know	(8)	go to Q100
## No answer	(9)	go to END3

[If Q050 = 2]

Q051

Approximately how many different establishments with 5 or more employees – including the headquarters – does your company or organisation have in {{country}}?

Interviewer: Enter "0" if none of the establishments has 5 or more employees. If the precise number of establishments is not known, a guess will be sufficient. Only employees on the payroll of the company or organisation are to be counted, no temporary agency workers or subcontracted workers.

__ establishments with 5 or more employees		go to FILT052
## No answer	(999)	go to END3

FILT 052

"0"	establishments with 5 or more employees	go to END4
"1"	establishments with 5 or more employees	go to Q052a
"2"	establishments with 5 or more employees	go to Q053a
"3 - 998"	establishments with 5 or more employees	go to Q054a

[If Q051 = 1]

Q052a

Does the establishment at this address have at least five employees?

Yes	(1)	go to Q100
No	(2)	go to Q052b
## No answer/refused	(9)	go to END3

[If Q051 = 1 and Q052a = 2]

Q052b

In this case, this establishment is unfortunately not eligible for the interview because our study is conducted only in establishments with at least 5 employees. Would you please give me the telephone number of the establishment with 5 or more employees and – if possible – the name of the person who knows best about health and safety there?

## Information about additional respondent obtained	(1)	go to Q080_adr
## Refused	(9)	go to END3

[If Q051 = 2]
Q053a
Does the establishment at this address have at least five employees?

Yes	(1)	go to Q053b
No	(2)	go to Q053c
## No answer/refused	(9)	go to END3

[If Q053a = 1]
Q053b
In this case, we would very much like to conduct an interview in this establishment. For statistical reasons, it is however very important for our study to conduct interviews at different sites of multi-site organisations. Would you be so kind as to give us the name and telephone number of the other establishment with 5 or more employees your organisation has in this country so that we can contact them afterwards for an additional interview?

## Information about additional respondent obtained	(1)	go to Q081_adr1
## Ask again at the end of the interview (respondent first wants to answer the interview)	(2)	go to Q100
## Refused	(9)	go to Q090

[If Q053a = 2]
Q053c
In this case, this establishment is unfortunately not eligible because our study is conducted only in establishments with at least 5 employees. But we would very much like to interview the two establishments of your company that have at least 5 employees.
Would you please be so kind as to give us their name and telephone numbers so that we can ask them for an interview?

## Information about additional respondent obtained	(1)	go to Q081_adr1
## Refused	(9)	go to END3

[If Q051 = 3 thru 998]
Q054a
Does the establishment at this address have at least five employees?

Yes	(1)	go to Q054b
No	(2)	go to Q054c
## No answer/refused	(9)	go to END3

[If Q054a = 1]

Q054b

In this case, we would very much like to conduct an interview in this establishment. It is however very important for the survey to conduct interviews at different sites of multi-site organisations
Would you be so kind as to give us the telephone number of the subsidiary with 5 or more employees that – within {{country}} is located farthest away from your site so that we can contact it afterwards for an additional interview?

## Information about additional respondent obtained	(1)	go to Q081_adr1
## Ask again at the end of the interview (respondent first wants to answer the interview)	(2)	go to Q100
## Refused	(9)	go to Q090

[If Q054a = 2]

Q054c

In this case, this establishment is unfortunately not eligible because our study is conducted only in establishments with at least 5 employees. But we would very much like to interview two of the establishments of your company that have at least 5 employees.
Would you please be so kind as to give us the name and telephone number of the establishment that is located closest to yours as well as that of the establishment that is farthest away so that we can ask them for an interview?

## Information about additional respondent obtained	(1)	go to Q081_adr1
## Refused	(9)	go to END3

[If Q053 = 3 or Q054 = 3]

Q090

I understand that you do not want us to conduct a second interview in this organisation. May I however continue the interview with you?

Yes	(1)	go to Q100
No	(2)	go to END6

END3
Thank you nevertheless for your time. Good bye.

END call

No further call attempt.

Record non-response reason 47 "Refusal to provide information in the screening phase"

END4
In this case, your organisation is not eligible for the interview since the survey is conducted only if there is an establishment with 5 or more employees in the organisation. Thank you for your time, nevertheless, and for your willingness to participate. Good bye.

END call

No further call attempt.

Record non-response reason 44 "No single establishment with 5 or more employees"

END5
Thank you for this information. We will then call the selected establishment and ask for an interview there. Good bye.

END call

Make sure that information collected so far is stored and will be available for second call and for final data file.

Record non-response reason 42 "Size out of target"

END6
Thank you nevertheless for your time. Good bye.

END call

No further call attempt.

Record non-response reason 46 "Interview terminated after screening phase, not to call back"

B. Introductory questions (part of background information)

[Asked to all]
Q100
May I first of all check: What is your function in this establishment? Are you...

INT: Multiple answers possible

_1) The owner or a partner of this firm	(1)
_2) The managing director, site or branch manager	(1)
_3) Another manager	(1)
_4) The health and safety officer	(1)
_5) An employee representative in charge of health and safety or	(1)
_6) Another employee in charge of the subject	(1)
_7) ## An external health and safety consultant	(1)
9) ## No answer	(1)

[If Q100_3, _4 or _5 or _6= 1]
Q101
Is health and safety your main task or is it just one of a number of tasks you have at this establishment?

Main task	(1)
One of a number of tasks	(2)
## No answer	(9)

[Asked to all respondents in non-screening countries]
Q102
Is this establishment a single organisation, or is it one of several establishments at different locations in {{country}} belonging to the same company or organisation?

A single company or organisation	(1)
One of a number of different establishments the organisation has in this country	(2)
## Don't know	(8)
## No answer	(9)

[If Q102 = 2 (non-screening countries only)]
Q103a
Is this the headquarters or is it a subsidiary site?

Headquarters	(1)
Subsidiary site	(2)
## No answer	(9)

[If Q050 = 2 (screening countries only)]
Q103b
May I confirm once again: Is this the headquarters of your company or organisation or is it a subsidiary site?

Headquarters	(1)
Subsidiary site	(2)
## No answer	(9)

[Asked to all]
Q104
Approximately how many people work at this establishment during a normal week, regardless of whether they are physically present or carry out their work outside of the premises?
[if Q050 or Q102 = 1]
Please include directly employed persons as well as temporary agency workers, subcontractors and self-employed. An estimate is sufficient.
[if Q050 or Q102 = 2, 8 or 9]
Please include directly employed persons as well as temporary agency workers, subcontractors and self-employed, but refer to the local site only. An estimate is sufficient.

Interviewer: add if necessary: Each employee is counted as one person, regardless whether they are working full-time or part-time (= headcount).

☐☐☐☐☐

## No answer	(99999)

[Asked to all]
Q105
And roughly how many of these people are directly employed by your establishment?

Interviewer: add if necessary: With directly employed people we mean those who are on the payroll of your organisation.

_____ Number of directly employed people in the establishment

➔ *Filter to END if <5 employees or if "No answer"*

## All of them	(programmer: insert figure from Q104)
## No answer	(99999) ➔ END

[Asked if figure given in Q105 is larger than figure given in Q104]
Q105_check
The number of directly employed people you just indicated is larger than the total number of people working in the establishment as indicated in the previous question. Are you sure that this is correct or do you want to correct any of these two figures?

The given figures are both correct	(1)
Respondent wants to correct figure for total number (Q104)	(2)
Respondent wants to correct figure for directly employed People (Q105)	(3)
Respondent wants to correct both figures	(4)
## No answer	(9)

Q106_txt:
All following questions refer to all people working at this establishment in a normal week, i.e. including temporary agency workers, subcontractors and self-employed working at your premises. From now on, we will refer to all of these groups together as "employees".

[Asked to all]
Q107
Do any of the employees have difficulties understanding the language spoken at your premises?

Yes	(1)
No	(2)
## No answer	(9)

[Asked to all]

Q110

And about what proportion of the employees is aged 55 years or older? Is that...

None at all	(1)
Less than a quarter	(2)
A quarter to half or	(3)
More than half of your workforce	(4)
## No answer	(9)

[Asked to all]

Q111

Do any of the employees work from home on a regular basis, for example one day per week?

Yes	(1)
No	(2)
## No answer	(9)

[Asked to all, except for Hungary and Turkey, and in Montenegro if sector information available from the address]

Q112

According to the information in the database, this establishment belongs to the sector [[*]]. Is this correct?

Yes	(1)
No	(2)
## No answer	(9)

***Text for the respective NACE sector at the 2-digit level inserted here from official translations of the NACE codification.**

[If Q112 = 2 or 9]

Q113

Could you please describe briefly the main activity of this establishment?

## No answer	(9)

[Asked to all]
Q114
Does this establishment belong to the public sector?

Interviewer: add if necessary: A public sector organisation is wholly or mainly owned by the state.

Yes	(1)
No	(2)
## No answer	(9)

[Asked if Q114 = 2 or 9]
Q115
In about which year did this establishment start to operate? Please include time at previous locations or under a different ownership.

Interviewer: Enter the named year in the box. If respondent cannot spontaneously name the year of foundation, tick "don't know" and read out the categories appearing on the screen!

Year: (allow values from 1500 to 2014)

## Don't know	(9998)
## No answer	(9999)

[Asked if Q115 = 9998]
Q115x
Could you please give me your best estimate using the following time periods?

Before 1990	(1)
1990 to 2005	(2)
2006 to 2010 or	(3)
After 2010	(4)
## No answer	(9)

- C. Day-to-day health and safety management
Part I: Available expertise and general policy

The next questions are about how health and safety is organized at your establishment.

[Asked to all]
Q150
What health and safety services do you use, be it in-house or contracted externally?

	Yes	No	No answer
_1) An occupational health doctor	(1)	(2)	(9)
_2) A psychologist	(1)	(2)	(9)
_3) An expert dealing with the ergonomic design and set-up of work-places	(1)	(2)	(9)
_4) A generalist on health and safety	(1)	(2)	(9)
_5) An expert for accident prevention	(1)	(2)	(9)

[Asked to all]
Q155
Is a document that explains responsibilities and procedures on health and safety available to the people working in the establishment?

Yes	(1)
No	(2)
## Yes, but only to some types of employees	(3)
## No answer	(9)

[Asked to all]
Q156
Is there a specific budget set each year for health and safety measures and equipment in your establishment?

Yes	(1)
No	(2)
## No answer	(9)

[Asked to all]

Q157

Does your establishment arrange regular medical examinations to monitor the health of employees?

Yes	(1)
No	(2)
## No answer	(9)

[Asked to all]

Q158

Does your establishment take any of the following measures for health promotion among employees?

	Yes	No	No answer
_1) Raising awareness about healthy nutrition	(1)	(2)	(9)
_2) Raising awareness on the prevention of addiction, e.g. to smoking, alcohol or drugs	(1)	(2)	(9)
_3) Promotion of sports activities out of working hours	(1)	(2)	(9)
_4) Promotion of back exercises, stretching or other physical exercise at work	(1)	(2)	(9)

[Asked to all]

Q160

Are sickness absences routinely analysed with a view to improving the working conditions?

Yes	(1)
No	(2)
## No answer	(9)

[If q105 >49 and <99999]

Q161

Is there a procedure to support employees returning to work after a long-term sickness absence?

Interviewer: add if necessary: If the establishment has not had any returners from long-term sickness absence so far, we want to know whether or not a procedure has been set up for the event of such cases.

Yes	(1)
No	(2)
## No answer	(9)

[If q105 >19 and <99999]

Q162

In your establishment, are health and safety issues discussed at the top level of management regularly, occasionally or practically never?

Regularly	(1)
Occasionally	(2)
Practically never	(3)
## Not applicable	(4)
## No answer	(9)

[If q105 >19 and <99999]

Q163

Do the team leaders and line managers in your establishment receive any training on how to manage health and safety in their teams?

Yes	(1)
No	(2)
## Just some of them	(3)
## No answer	(9)

[if (Q100_3, Q100_4, Q100_5, Q100_6 or Q100_9 = 1) and Q100_1,Q100_2≠1]
Q164a
Have you personally received any training on how to manage health and safety?

[if Q100_1 or Q100_2 = 1]
Q164b
Have you personally received any training on how to manage health and safety in your establishment?

Yes	(1)
No	(2)
## No answer	(9)

[Asked to all]
Q165
Has your establishment been visited by the {{labour inspectorate}} in the last 3 years in order to check health and safety conditions?

Yes	(1)
No	(2)
## No answer	(9)

[Asked to all, size depending on national thresholds for these bodies]
Q166
Which of the following forms of employee representation do you have in this establishment?

	Yes	No	No answer
_1) {{A works council}}	(1)	(2)	(9)
_2) {{A trade union representation}}	(1)	(2)	(9)
_3) {{An health and safety representative}}	(1)	(2)	(9)
_4) {{A health and safety committee}}	(1)	(2)	(9)

- D. (Traditional and new) health and safety risks in the establishment

[Asked to all]

Q200

Depending on the type of work there are different types of risks and hazards. Please tell me for each of the following risk factors whether it is present or not in your establishment, regardless of whether it is currently under control and regardless of the number of employees it affects.

	Yes	No	No answer
_1) Tiring or painful positions, including sitting for long periods	(1)	(2)	(9)
_2) Lifting or moving people or heavy loads	(1)	(2)	(9)
_3) Loud noise	(1)	(2)	(9)
_4) Repetitive hand or arm movements	(1)	(2)	(9)
_5) Heat, cold or draught	(1)	(2)	(9)
_6) Risk of accidents with machines or hand tools	(1)	(2)	(9)
_7) Risk of accidents with vehicles in the course of work but not on the way to and from work	(1)	(2)	(9)
_8) Chemical or biological substances in the form of liquids, fumes or dust	(1)	(2)	(9)
_9) Increased risk of slips, trips and falls	(1)	(2)	(9)

[Asked to all]

Q201

Besides these risks, there may also be health risks resulting from the way work is organised, from social relations at work or from the economic situation. Please tell me for each of the following risks whether or not it is present in the establishment?

	Yes	No	No answer
_1) Time pressure	(1)	(2)	(9)
_2) Poor communication or cooperation within the organisation	(1)	(2)	(9)
_3) Employees' lack of influence over their work pace or work processes	(1)	(2)	(9)
_4) Job insecurity	(1)	(2)	(9)
_5) Having to deal with difficult customers, patients, pupils etc.	(1)	(2)	(9)
_6) Long or irregular working hours	(1)	(2)	(9)

_7) Discrimination, for example due to gender, age or ethnicity (1) (2) (9)

[Asked if any of Q200_1 to 9 = 1 or any of Q201_1 to _7 = 1]; only items ticked with "yes" in Q200 (for items 1 to 9) respectively Q201 (for items 10 to 16) are shown

Q202
For which of the risks - if any - is your establishment lacking information or adequate preventive tools [to deal with them effectively]?

Interviewer: Multiple answers possible

_1) Tiring or painful positions, including sitting for long periods (1)
_2) Lifting or moving people or heavy loads (1)
_3) Loud noise (1)
_4) Repetitive hand or arm movements (1)
_5) Heat, cold or draught (1)
_6) Risk of accidents with machines or hand tools (1)
_7) Risk of accidents with vehicles in the course of work (1)
_8) Chemical or biological substances (1)
_9) Increased risk of slips, trips and falls (1)
_10) Time pressure (1)
_11) Poor communication or cooperation within the organisation (1)
_12) Employees' lack of influence on their work pace or work processes (1)
_13) Job insecurity (1)
_14) Having to deal with difficult customers, patients, pupils etc.. (1)
_15) Long or irregular working hours (1)
_16) Discrimination, for example due to gender, age or ethnicity (1)
_17) ## None of these (1)
_99) ## No answer (1)

- E. Day-to-day OSH management Part II: Risk Assessments

[Asked to all]
Q250
Does your establishment regularly carry out workplace risk assessments?

Interviewer: add if necessary: A risk assessment is a structured review of what, in your work could harm people, and how these risks will be controlled.

Yes	(1)
No	(2)
## No answer	(9)

[if Q250 = 1]
Q251
Are workplace risk assessments mainly conducted by internal staff or are they contracted to external service providers?

Conducted mainly by internal staff	(1)
Contracted mainly to external providers	(2)
## Both about equally	(3)
## No answer	(9)

[if Q250 = 1]
Q252
Which of the following aspects are routinely evaluated in these workplace risk assessments?

	Yes	No	No answer
_1) The safety of machines, equipment and installations	(1)	(2)	(9)
_2) If Q200_8 = 1 Dangerous chemical or biological substances	(1)	(2)	(9)
_3) Work postures, physical working demands and repetitive movements	(1)	(2)	(9)
_4) Exposure to noise, vibrations, heat or cold	(1)	(2)	(9)
_5) Supervisor-employee relationships	(1)	(2)	(9)
_6) Organisational aspects such as work schedules, breaks or work shifts	(1)	(2)	(9)

[If Q250 = 1 and Q111 = 1]
Q253a
Do risk assessments cover workplaces at home?

Yes	(1)
No	(2)
## Only some of them	(3)
## No answer	(9)

[If Q250 = 1 and Q104 > Q105 and Q104 < 99999]
Q253b
Do risk assessments cover only people directly employed by your establishment or do they also cover other types of workers at your establishment?

Only the directly employed people are covered	(1)
Other types of workers are also covered	(2)
## Only some types of other workers are covered	(3)
## No answer	(9)

[if Q250 = 1]
Q254
In what year was the last workplace risk assessment carried out?

Year: _____ *[allow values from 1970 to 2014]*

## Don't know	(9998)
## No answer	(9999)

[if Q254 = 1970 to 2014 or 9998]
Q255
Has it been documented in written form?

Yes	(1)
No	(2)
## No answer	(9)

[if Q254 = 1970 to 2014 or 9998]

Q256

Who has been provided with the findings of the workplace risk assessment?

	Yes	No	No answer
_1) The management	(1)	(2)	(9)
_2) [If Q166_3 = 1]: {{The health and safety representatives}}	(1)	(2)	(9)
_3) [If Q166_1 = 1]: {{The works council}}	(1)	(2)	(9)
_4) [If Q166_2 = 1]: {{The trade union representatives}}	(1)	(2)	(9)
_5) The employees themselves	(1)	(2)	(9)

[If Q250=1]

Q258b

If measures have to be taken following a risk assessment: Are the employees usually involved in their design and implementation?

Yes	(1)
No	(2)
## That depends on the type of measures	(4)
## No answer	(9)

[if Q250 = 1]

Q259

In your establishment, is the risk assessment procedure seen as a useful way of managing health and safety?

Yes	(1)
No	(2)
## There are conflicting views about this	(3)
## No answer	(9)

[If Q250 = 2]

Q261

Are there any particular reasons why workplace risk assessments are not regularly carried out? Please tell me for each of the following whether it applies to your establishment or not?

	Yes	No	No answer
_1) the hazards and risks are already known anyway	(1)	(2)	(9)
_2) there are no major problems	(1)	(2)	(9)
_3) the procedure is too burdensome	(1)	(2)	(9)
_4) the necessary expertise is lacking	(1)	(2)	(9)

[If Q250 = 2]

Q262

Are any other measures taken to check for health and safety in the establishment?

Yes	(1)
No	(2)
## No answer	(9)

[If Q262 = 1]

Q263

What do these other checks consist of? Is that...

	Yes	No	No answer
_1) checking that emergency routes are kept free	(1)	(2)	(9)
_2) visual checks on whether employees stick to safety rules	(1)	(2)	(9)
_3) regular, but undocumented workplace inspections	(1)	(2)	(9)

[Asked to all]

Q264

In your establishment, how important are the following reasons for addressing health and safety? For each reason, please tell me whether it is a major reason, a minor reason or not a reason at all.

	Major reason	Minor reason	Not a reason	No answer
_1) Fulfilling legal obligation	(1)	(2)	(3)	(9)
_2) Meeting expectations from employees or their representatives	(1)	(2)	(3)	(9)
_4) Maintaining or increasing productivity	(1)	(2)	(3)	(9)
_5) Maintaining the organisation's reputation	(1)	(2)	(3)	(9)
_6) Avoiding fines and sanctions from the {{labour inspectorate}}	(1)	(2)	(3)	(9)

[Asked to all]

Q265

What are the main difficulties in addressing health and safety in your establishment? Please tell me for each of the following options whether it is a major difficulty, a minor difficulty, or not a difficulty at all.

	Major reason	Minor reason	Not a reason	No answer
_1) A lack of time or staff	(1)	(2)	(3)	(9)
_2) A lack of money	(1)	(2)	(3)	(9)
_3) A lack of awareness among staff	(1)	(2)	(3)	(9)
_4) A lack of awareness among management	(1)	(2)	(3)	(9)
_5) A lack of expertise or specialist support	(1)	(2)	(3)	(9)
_6) The paperwork	(1)	(2)	(3)	(9)
_7) The complexity of legal obligations	(1)	(2)	(3)	(9)

- F. New risks: Psychosocial risks and Musculo-skeletal disorders

The following questions are about psychosocial risks at the workplace such as those resulting from the way work is organised, from social relations at work or from the economic situation.

[If q104 >19 and <99999]
Q300
Does your establishment have an action plan to prevent work-related stress?

Interviewer: add if necessary: Work-related stress is experienced when the demands of the work exceed the employees' ability to cope with or control them. If stress is considered as not prevalent in the establishment, we nevertheless like to know whether procedures are in place in case that stress might become an issue.

Yes	(1)
No	(2)
## No answer	(9)

[If q104 >19 and <99999]
Q301
Is there a procedure in place to deal with possible cases of bullying or harassment? Bullying or harassment occurs when employees or managers are abused, humiliated or assaulted by colleagues or superiors.

Interviewer: add if necessary: If bullying or harassment is considered as not prevalent in the establishment, we nevertheless like to know whether procedures are in place in case that these might become an issue.

Yes	(1)
No	(2)
## No answer	(9)

[If q104 >19 and <99999 and Q201_5 = 1]

Q302

And is there a procedure to deal with possible cases of threats, abuse or assaults by clients, patients, pupils or other external persons?

Interviewer: add if necessary: If such threats, abuse or assaults are not prevalent in the establishment, we nevertheless like to know whether procedures are in place in case that it might become an issue.

Yes	(1)
No	(2)
## No answer	(9)

[Asked to all]

Q303

In the last 3 years, has your establishment used any of the following measures to prevent psychosocial risks?

Interviewer: add if necessary: With psychosocial risks we mean health risks such as work-related stress, bullying, harassment or violence at the workplace.

	Yes	No	No answer
_1) Reorganisation of work in order to reduce job demands and work pressure	(1)	(2)	(9)
_2) Confidential counselling for employees	(1)	(2)	(9)
_3) Set-up of a conflict resolution procedure	(1)	(2)	(9)
_4) Intervention if excessively long or irregular hours are worked	(1)	(2)	(9)

[If any of Q303_1 to Q303_4 = 1]

Q304

Were the measures taken triggered by concrete problems with stress, bullying, harassment or violence in the establishment?

Yes	(1)
No	(2)
## Partly	(8)
## No answer	(9)

[If any of Q303_1 to Q303_4 = 1]

Q305

Did the employees have a role in the design and set-up of measures to address psychosocial risks?

Yes	(1)
No	(2)
## No answer	(9)

[If at least one of Q201_1 to Q201_7 = 1]

Q306a

Considering the situation in your establishment: Do any of the following factors make addressing psychosocial risks more difficult than addressing other health risks?

	Yes	No	No answer
_3) A lack of awareness among staff	(1)	(2)	(9)
_4) A lack of awareness among management	(1)	(2)	(9)
_5) A lack of expertise or specialist support	(1)	(2)	(9)
_6) Reluctance to talk openly about these issues	(1)	(2)	(9)

[Asked to all]

Q307

Do you have sufficient information on how to include psychosocial risks in risk assessments?

Yes	(1)
No	(2)
## No answer	(9)

[Asked to all]

Q308

Now turning to musculoskeletal problems such as pain in the back, neck, arms, hands or legs, are any of the following preventive measures in place in your establishment?

	Yes	No	No answer
_1) [if Q200_2 = 1]: Equipment to help with the lifting or moving of loads or other physically heavy work	(1)	(2)	(9)
_2) [if Q200_4 = 1]: Rotation of tasks to reduce repetitive movements or physical strain	(1)	(2)	(9)
_3) Encouraging regular breaks for people in uncomfortable or static postures including prolonged sitting	(1)	(2)	(9)
_4) Provision of ergonomic equipment, such as specific chairs or desks	(1)	(2)	(9)

G. Employee participation in OSH issues

[If any of Q166_1 to Q166_4 = 1]

Q350

How often is health and safety discussed between employee representatives and the management? Do such discussions take place regularly, only when particular health and safety issues arise or not at all?

Regularly	(1)
Only when particular issues arise	(2)
Not at all	(3)
## Does not apply (there are no employee representatives)	(7)
## No answer	(9)

[If Q350 = 1 or 2]

Q351

And how often do controversies related to health and safety arise? Is this often, sometimes or practically never the case?

Often	(1)
Sometimes	(2)
Practically never	(3)
## No answer	(9)

[If Q351 = 1 or 2]

Q352

And what are the main areas of controversy?

	Yes	No	No answer
_1) Investments in equipment	(1)	(2)	(9)
_2) Provision of training for employee representatives	(1)	(2)	(9)
_3) Provision of training for employees	(1)	(2)	(9)
_4) What measures need to be taken	(1)	(2)	(9)
_5) The degree of involvement of employees or their representatives	(1)	(2)	(9)

[If Q166_3 = 1]
Q354
Are {{the health and safety representatives}} provided with any training during work time to help them perform their health and safety duties?

Yes	(1)
No	(2)
## Yes, but only some of them	(3)
## No answer	(9)

[If Q166_3 = 1]
Q356
And what about the employees themselves: On which of the following topics does your establishment provide them with training?

[Asked to all others, i.e. if Q166_3 = 2 or 9 or missing]
On which of the following topics does your establishment provide the employees with training?

	Yes	No	No answer
_1) The proper use and adjustment of their working equipment and furniture	(1)	(2)	(9)
_2) If Q200_8 = 1: The use of dangerous substances	(1)	(2)	(9)
_3) On how to prevent psychosocial risks such as stress or bullying	(1)	(2)	(9)
_4) If Q200_2 = 1: On how to lift and move heavy loads or people	(1)	(2)	(9)
_5) Emergency procedures	(1)	(2)	(9)

[If Q107 = 1]
Q357
Is any of this training also provided in different languages?

Yes	(1)
No	(2)
## No answer	(9)

[Asked to all]

Q358

Are health and safety issues regularly discussed in staff or team meetings?

Yes	(1)
No	(2)
## In some departments only	(3)
## No answer	(9)

- H. Sources of support

[Asked to all]
Q400
Has your establishment used health and safety information from any of the following organisations?

	Yes	No	No answer
_1) Employers' organisations	(1)	(2)	(9)
_2) Trade unions	(1)	(2)	(9)
_3) Insurance providers	(1)	(2)	(9)
_5) {{The labour inspectorate}}	(1)	(2)	(9)
_6) Other official institutes for health and safety at work	(1)	(2)	(9)

[Asked to all]
Q401
Are you aware of the Healthy Workplaces Campaigns run by the European Agency for Safety and Health at Work?

Yes	(1)
No	(2)
## No answer	(9)

- I. Final background questions

[Asked to all]
Q450
How would you rate the level of absenteeism in your establishment compared with other establishments in the sector? Is it very high, quite high, about average, quite low or very low?

Very high	(1)
Quite high	(2)
About average	(3)
Quite low	(4)
Very low	(5)
## No answer	(9)

[Asked to all]
Q451
How would you rate the current economic situation of this establishment? Is it very good, quite good, neither good nor bad, quite bad or very bad?

Very good	(1)
Quite good	(2)
Neither good nor bad	(3)
Quite bad	(4)
Very bad	(5)
## No answer	(9)

[If Q451 = 3, 4 or 5]
Q452
Has the economic situation over the last three years resulted in a reduction of the resources available for health and safety at your establishment?

Yes	(1)
No	(2)
## No answer	(9)

[Asked to all]

Q453

May we or the European Agency for Safety and Health at Work contact you again later if we should have any additional questions for a follow-up study based on your answers in this survey?

Yes, agrees	(1)
No, does not agree	(2)
## No answer	(9)

[If Q453 = 1]

Q454

In order to re-contact you for this purpose, can I ask your name, email address and direct phone number please?

Full name:	_____	(1)
Email address:	_____	(2)
Direct phone number:	_____	(3)
## Refuses to provide this information		(9)

[If Q053b=2 or Q054b=2]
Q601
As mentioned in the beginning, it is very important for the survey to conduct interviews at different sites of multi-site organisations. These are unfortunately not listed in any suitable address register.

[If Q051 > 2] **May I ask you again whether you could give us the telephone number of the subsidiary with 5 or more employees that - within {{country}} is located farthest away from your site so that we can contact it afterwards for an additional interview?**

[If Q051 = 2] **May I ask you again whether you could give us the telephone number of the subsidiary with 5 or more employees so that we can contact it afterwards for an additional interview?**

## Information about additional respondent obtained	(1)	go to Q081_adr1
## Refused because health and safety situation is the same in all establishments of the organisation	(8)	go to END7
## Refused	(9)	go to END7

END7
I understand that you do not want us to conduct a second interview in this organisation.

[Read out to all]
Thank you very much for your cooperation.

END of the interview.

[If screening country with take-up of additional address]
Q602
Interviewer: If in the course of the interview the respondent withdrew his/her allowance to contact a further establishment of this organisation, this needs to be recorded here so that the address can be deleted.

## It is still OK to contact the other site.	(1)
## Allowance was explicitly withdrawn	(9)