

European Commission

Call for tenders JRC/SVQ/2023/OP/2571- Analysis on Impacts of Algorithmic Management and Artificial Intelligence in the Workplace (AIM-WORK)

Open Procedure

TENDER SPECIFICATIONS

Part 2: Technical specifications

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1 BACKGROUND AND RATIONALE

1.1 The Directorate and the Unit

The Directorate Fair and Sustainable Economy of the Joint Research Centre (JRC.B) of the European Commission, based in Seville (Spain), provides first-class analysis and data to support the EU's aim for today's and tomorrow's Europeans to enjoy fair and sustainable prosperity. It takes a systemic view of the relationships between economic activities, the environmental impacts of human activities and the societal needs of the EU's citizens. Directorate B develops and carries out macroeconomic analysis and supports policy making with its unique analytical and modelling tools. It boosts EU innovation-driven competitiveness in the global context, turning territorial diversity and urban-rural interactions into value. It drives European markets, industry and services, including construction and the built environment, towards environmental sustainability.

The mission of the Industrial Strategy, Skills and Technology Transfer unit of the Directorate Fair and Sustainable Economy (JRC.B.6) is to support policy making for a globally competitive and world-leading EU industry, cleaner, more digital and more resilient, capable to ensure Europe's strategic autonomy in critical technologies and strategic value chains, in a context of profound global geopolitical shifts. It monitors and analyses industrial trends, opportunities and competitiveness in a context of transformation with a focus on R&D investments, technological development and innovation, productivity growth, technology transfer, and skills requirements. The unit also analyses the implications of these trends for European labour markets and human capital, and how employment, education and training policies can support a fair digital and green transition. It works in close collaboration with the European Commission's Directorate-General for Employment, Social Affairs and Inclusion (EMPL).

In that context, the unit's Employment and Skills team conducts an ambitious research programme on the changing nature of work, focusing on the impact of the digital transformation but also considering other factors such as changing regulation or demographic change. This programme of work is structured in three vectors of change: the automation of work, the digitalisation of processes, and the platformisation of work.

This call for tenders focuses on this last vector of change, which analyses how algorithmic management and other AI-driven tools are increasingly used for work organisation.

1.2 Policy background

The algorithmic management of work, driven by the use of Artificial Intelligence and other advanced technologies in the workplace, can positively impact the economy through efficiency and productivity gains. However, its potentially negative repercussions for workers and society at large need to be duly addressed. The extension of algorithmic management practices to traditional sectors is a recent phenomenon and more evidence is needed to fully understand its implications for work organisation and working conditions.

At EU level there have already been policy initiatives aiming at addressing some of these issues. The 2021 proposal for a Directive on the working conditions of platform workers includes a set of measures to improve the working conditions in platform work and to support the sustainable growth of digital labour platforms in the EU. The new rules aim to ensure that people working through digital labour platforms can enjoy the labour rights and social benefits they are entitled to. The proposal addresses algorithmic management, but only as far as digital labour platforms are concerned while algorithmic management practices are extending fast into traditional workplaces. The Commission proposal for an AI Act also looks into the implications of the introduction of AI in the workplace, and classifies as high risk some of the related uses. However, the nature and wide scope of the phenomenon as well as its increasing pervasiveness may well require further regulatory steps specifically targeting algorithmic management in the workplace in order to ensure that Europe's regulatory framework remains fit for the digital age. In order to support future policy discussions on algorithmic management and AI-driven tools and inform policy decisions further research will be essential to deliver robust evidence on the evolving nature of algorithmic management, its growth and its increasingly visible consequences.

1.3 Research context

A preliminary and partial implementation of the JRC Algorithmic Management and Platform Work survey (AMPWork) was conducted in Spain and Germany between September 2021 and March 2022. The survey was designed and coordinated by the Employment and Skills Team of the European Commission's Joint Research Centre, in collaboration with the Directorate General for Employment, Social Affairs and Inclusion.

The AMPWork survey was initially conceived as a follow up of the COLLEEM I and II pilot surveys, carried out in 2017 and 2018 by the JRC in collaboration with DG EMPL (Pesole et al. 2018; Urzì-Brancati et al 2020). COLLEEM I and II were focused on exploring the

prevalence and conditions of platform work in Europe, using a non-probabilistic sample of internet users between 16 and 74 years old, with self-completed online questionnaires. COLLEEM I and II were exploratory surveys that contributed to a better understanding of the emerging phenomenon of platform work, but they were limited by the lack of statistical representativeness of the sample and by the difficulties of online data collection.

Compared to COLLEEM I and II, the AMPWork survey had a much broader scope and ambition. Rather than focusing on work in digital labour platforms, it aimed at measuring the prevalence and implications of algorithmic management and digital monitoring practices for the general working population. Its sample is statistically representative of the entire working age population of the two Member States covered. **Building on the success of the initial implementation of the AMPWork survey in Germany and Spain, the JRC in collaboration with EMPL intends to extend this survey to all Member States, with some adaptations discussed in this document.**

The initial implementation of AMPWork in Germany and Spain found that a relatively high proportion of workers use digital tools and are subject to digital monitoring and algorithmic management. The share ranges between 10-20%, among clerks and operators in high-technology industries, knowledge-intensive services, and public administration, and is higher for those working outside of their employer's premises, such as at home, in a vehicle, or in public spaces.

The automated allocation of work — or the assignment of shifts or working time via a digital device — is the most common form of algorithmic management, concerning 10% and 20% of German and Spanish workers sampled. A smaller share of workers is also allocated work activities or has its pace of work determined by a digital device.

The full results of the initial implementation of AMPWork in Germany and Spain, as well as details on the methodology and questionnaire, can be consulted in the report (Fernández-Macías et al. 2023)¹.

1 [JRC Publications Repository - The platformisation of work \(europa.eu\)](#)

2 AIM AND OBJECTIVES OF THIS CONTRACT

The aim of this contract is to assess the prevalence and implications of algorithmic management at work in the EU by collecting representative data in all 27 EU Member States on the use of digital devices and on algorithmic management at work, including the use of AI-driven tools. For this purpose, a statistically representative sample of the working age population in all EU Member States will be interviewed by phone, using a standardised questionnaire. The end result will be a dataset that will be used to study the prevalence and implications of digital monitoring and algorithmic management at work in the EU.

The standardised questionnaire will be based in the already existing AMPWork questionnaire (see Annex 1). This questionnaire was used in the initial implementation of AMPWork, which was carried out in late 2021 and early 2022 using face-to-face interviewing in the household of selected respondents. The fieldwork of this contract, instead, will be carried out using Computer-Assisted Telephone interviewing (CATI). Therefore, it will be necessary to revise and adapt the existing AMPWork questionnaire to make it adequate for CATI interviewing. This revision and adaptation, as well as any other change that the JRC research team considers necessary, will be carried out jointly by the JRC research team and the contractor.

Another key objective of this contract will be to develop a suitable sampling strategy and survey methodology to use the updated questionnaire to collect representative data on the EU27 working age population via telephone interviews. Again, the methodological starting point will be the approach taken in the initial implementation of the AMPWork survey in Germany and Spain. That initial implementation was carried out using a multi-stage stratified and clustered design with a random walk procedure for the selection of the respondents at the last stage, whereas in the extension of AMPWork to all Member States a CATI approach will be used instead. Therefore, it will be necessary to develop a new sampling strategy and methodology, including the necessary quality strategy and quality control mechanisms, to ensure full statistical representativeness of the sample used in this contract.

3 SURVEY SCOPE AND METHODOLOGY

3.1 Survey scope and questionnaire

The survey aims primarily at collecting information on the use of digital tools at work and the prevalence and conditions of digital monitoring and algorithmic management at work, including the use of AI-driven tools at work.

The survey will also collect some basic information on the prevalence of work via digital labour platforms (DLPs) and on the extent and motives of sharing content in online platforms with people outside family and close friends.

Although the survey is aimed at the full working age population, each section is specifically targeted at a subgroup of that population. The main section on algorithmic management and AI-driven tools at work is aimed at those in paid employment, while the complementary sections on work via DLPs and online content are aimed at a small share of respondents: respectively, those working via DLPs; and those providing content in sharing online platforms with people outside family and close friends.

All these aspects were included in the three main sections of the AMPWork questionnaire (see Annex 1), which will be updated as to integrate the survey's new aspects of AI-driven tools in the workplace. As indicated in point 2 the AMPWork questionnaire will also be revised and adapted to the CATI methodology. The JRC research team, in collaboration with EMPL, will provide a revised version of the questionnaire to the contractor., The contractor will propose further revisions and adaptations to the revised questionnaire, conducting cognitive testing and piloting to ensure that it is adequate for fieldwork. The final version of the questionnaire must be approved by the JRC research team before its implementation.

The final version of the questionnaire should require approximately 20 minutes (estimated average) to be completed via CATI.

The contractor will translate the final version of the questionnaire to all the official languages of the EU27 Member States. The translated versions will be back-translated into English and re-checked by the contractor, under the supervision of the JRC team, to ensure that the translation respects the original concepts and comparability.

3.2 Sampling strategy and survey methodology

- The target universe of the survey must be the full working age population (i.e. all individuals between 16 and 65 years old) in the 27 Member States of the EU.

For each country, a random representative sample of individuals will be selected for telephone interviewing, complying at least with the minimum sample sizes indicated in the following table.

Country	Number of Cases	Country	Number of Cases
Germany	3,000	Bulgaria	2,000
France	3,000	Denmark	2,000
Italy	3,000	Finland	2,000
Spain	3,000	Slovakia	2,000
Poland	3,000	Ireland	2,000
Romania	2,000	Croatia	2,000
Netherlands	2,000	Lithuania	2,000
Belgium	2,000	Slovenia	2,000
Greece	2,000	Latvia	2,000
Czechia	2,000	Estonia	2,000
Portugal	2,000	Cyprus	1,000
Sweden	2,000	Luxembourg	1,000
Hungary	2,000	Malta	1,000
Austria	2,000		

Table 1: minimum sample sizes

- Once an individual (or phone number) has been selected in the sample, a minimum of 5 attempts (calls) will be made at different moments of the day, including evenings and weekends, and with at least 2 weeks between the first and last attempt. The contractor should seek appropriate methods to reduce the rate of non-response.
- The final dataset must be provided with a codification agreed between the JRC research team and the contractor. The dataset must include all the weighting variables necessary to produce accurate estimates of parameters in the population, including design and post-stratification weights if applicable.

4 TASKS

The Contractor must perform the following tasks during the implementation of the contract.

4.1 Workpackage 1 – Kick-off meeting and consolidated work plan

The Contractor must organise a 1 day kick-off meeting (M1) to be held in Seville (Spain) within two weeks from the entry into force of the contract. The Contractor must present in detail the approach envisaged to address all the work packages:

- a. Detailed work plan;
- b. Methodological and practical proposal for the implementation of the survey, including sampling strategy and quality strategy and control mechanisms;
- c. A proposal of possible revisions for questionnaire.

The presentation will be discussed and the approach will be agreed with the JRC at the kick-off meeting.

One week after the meeting, the Contractor must submit to the JRC the minutes of the kick-off meeting, incorporating the agreed work plan, the refined survey methodology, the sampling and overall sampling methodology, the quality strategy and control mechanism proposed, the strategy to disseminate and collect the surveys and any other business emerged during the meeting (**Deliverable D1**).

4.2 Workpackage 2 – Organisation of the survey

Based on agreements reported in D1, the Contractor must carry out the following:

Task 2.1: Sampling strategy

In order to guarantee representative and statistically sound estimates, the minimum sample size per country (i.e. completed interviews) must conform to the specifications set out in table 1. Also, the contractor must develop a detailed strategy to ensure the highest possible response rate, while trying to minimise potential non-response bias.

In particular, once an individual (or phone number) has been selected in the sample, a minimum of 5 attempts (calls) must be made at different moments of the day, including the evening and weekends, and with at least 2 weeks between the first and last attempt.

The contractor must submit a complete report (**Deliverable D2.1**) describing the chosen sampling procedures eight weeks after the signature of the contract by both parties.

Task 2.2: Questionnaire

The aim of the questionnaire is to collect information on:

1. Socio-demographics variables (e.g. gender, age, level of education, marital status, total number of persons living in the house and living arrangements)
2. Economic status (employment status, profession, income, etc.)
3. Use of digital tools, including AI-driven tools, for purposes of work organisation and their implications (i.e. understanding power-dynamics shift, centralised decision-making, changes in the worker's sense of autonomy)
4. Complementarily, some basic information on work on digital labour platform (i.e. name of the platform, task performed, conditions of employment, type of remuneration e.g. task-based vs time-based, complexity of the task, etc.), and on the sharing of unpaid content via digital platforms (time spent, types of content shared and types of platform used, motivations).

Particular attention must be given to the finalisation of an English source questionnaire, including cognitive testing, to ensure high-quality and clear questions, suitable for a cross-national CATI comparative survey. The expected duration of the full interview is approximately 20 min.

As previously mentioned, the basis for the questionnaire will be the existing AMPWork survey (see annex 1). This questionnaire must be revised by the JRC research team and the contractor as to integrate the survey's covering of new aspects of AI-driven tools in the workplace in general, and adapted to a CATI survey mode. The final master questionnaire in English will be agreed between the contractor and the JRC research team.

The Contractor must submit the final version of the questionnaire (**Deliverable D2.2**) ten weeks after the entry into force of the contract.

Task 2.3: Translation of the questionnaires

The contractor must translate the questionnaire into all official EU languages. The translated versions will be back-translated into English and compared to ensure that the meaning and comparability of questions is respected in the translations. A linguistic and cultural quality

check must be performed in order to guarantee an adequate correspondence with the source questionnaire while taking into account local specificities.

The contractor is responsible for the finalisation of each language version and must ensure consistent use of key terms repeated in the questionnaire as well as the flow of the questionnaire.

The contractor must submit a detailed background note reporting the results of the translation exercise (i.e. difficulties in translated particular concepts and ways to overcome them).

The contractor must submit the translated questionnaires and the background note (**Deliverable D.2.3**) fourteen weeks after the entry into force of the contract.

Task 2.4: Pilot test

The contractor must carry out a pilot test of the full questionnaire in 3 of the 27 EU MS. The pilot of the survey should include a minimum of 50 valid (i.e. completed) interviews per country. The data set from the pilot survey must be submitted eighteen weeks after the entry into force of the contract (**Deliverable D.2.4.a**).

The contractor must respect the applicable Data Protection rules. The Contracting Authority will provide the Contractor with a standard European Commission privacy statement that shall be made visible to interviewees.

The contractor must provide an interim report reporting the results of the pilot exercise and addressing any relevant issues emerged during the piloting and proposed solutions (**Deliverable D.2.4.b**) within twenty weeks after the entry into force of the contract.

Task 2.5: Fieldwork preparation

The contractor is required to outline his strategy for contacting respondents and for documenting the contacting process. The contractor must clearly specify the procedures to follow, including:

- In accordance with the sampling strategy presented in D2.1, the contractor must describe in detail the procedures for randomly selecting respondents, numbers of recall/revisit and other measures to ensure a timely completion of fieldwork while minimising non-response.

- Measures to ensure the quality of interviewers and supervisors' training. A representative (or representatives) from the JRC will participate in the interviewers and supervisors' training in some of the countries.
- Quality control mechanisms to ensure a high-quality fieldwork.

4.3 Workpackage 3 – Implementation of the survey and data collection

Task 3.1: Implementation of the survey

The contractor must carry out the fieldwork and provide regular updates on the fieldwork implementation process and incidences with the implementation of checking log records indicating the severity of mistakes. The contractor must submit a preliminary data dump for internal review (**Deliverable D3.1.a**) thirty-two weeks after the entry into force of the contract as well as a report on the fieldwork monitoring thirty-six weeks after the entry into force of the contract (**Deliverable D.3.1.b**).

The contractor must collect the data through the implementation of the agreed questionnaire. All the responses of the questionnaire must be collected in one data file per country (including raw data exportable to Stata and Excel or similar). An interim raw dataset (**Deliverable D.3.1.c**) must be submitted thirty-eight weeks after the entry into force of the contract, containing the collected responses with a preliminary codification, to be revised and approved by the JRC research team.

Task 3.2: Data cleaning and codification manual

The data must be fully cleaned and validated before proceeding with the analysis, following the comments on the draft dataset by the JRC research team. The cleaning and data validation strategies will be discussed and approved by the JRC research team. The contractor must submit a full clean data set of all results (**Deliverable D3.2.a**) together with a codification manual of all databases (**Deliverable D3.2.b**), forty-four weeks after the entry into force of the contract. The dataset must include all the weighting variables necessary to produce accurate estimates of parameters in the population, including design and post-stratification weights if applicable.

Task 3.3: Methodology report

All the methodological aspects related to the design and implementation of the survey must be documented and reported in the Final Methodology report (**D3.3**) that is to be submitted by the contractor fifty weeks after the entry into force of the contract. In particular, a detailed discussion of the statistical representativeness of the sample with respect to the target population must be included, addressing potential sources of bias and methods/actions taken to remediate them.

4.4 Work package 4. Analysis of survey data

Task 4.1: Analysis and reporting at country level

The contractor must provide a report with frequency tables for the main variables in the questionnaire per country (**Deliverable D4**) that is to be submitted fifty-two weeks after the entry into force of the contract.

5 DELIVERABLES

The Contractor must provide the following deliverables:

- D1: Minutes from Kick-off Meeting, including the agreed work plan, the proposed survey methodology, the geographical coverage, the sampling methodology, the strategy to disseminate and collect the surveys and any other business emerged during the meeting, as described in Work package 1;
- D2.1: Report on sampling strategy as described in Task 2.1;
- D2.2: Final questionnaire as described in Task 2.2;
- D2.3: The translated version of the questionnaire and related background note as described in Task 2.3;
- D2.4.a: Dataset from the pilot survey as described in Task 2.4;
- D2.4.b: Interim report describing the results of the pilot exercise and addressing any relevant issues emerged during the piloting and proposed solutions as described in Task 2.4;
- D3.1.a: Preliminary data dump for internal review;
- D3.1.b: Report on the fieldwork monitoring as described in Task 3.1;

- D3.1.c: Interim raw dataset per country in its original language (Excel and Stata files) as described in Task 3.1;
- D3.2.a: Full clean dataset of all results including weights (Excel and Stata files) as described in Task 3.2;
- D3.2.b: Codification manual as described in Task 3.2;
- D3.3: Final Methodology report as described in Task 3.3;
- D4: Analysis and reporting at country level as described in Task 4.1.

JRC.B.6 will have 20 calendar days to review the deliverables and send its comments to the Contractor.

The Contractor will then have 20 calendar days for providing the final version of all the deliverables.

6 COORDINATION AND MEETINGS

The Contractor must carry out the service in close co-ordination with the relevant Commission staff (the Employment and Skills team of JRC.B.6). Telephone calls/videoconferences between the contractor and the JRC research team will be scheduled according to needs and after submission of each deliverable.

Four meetings will be organised in the frame of this contract as follows:

6.1 Kick-off meeting

The contractor must organise a one-day meeting (M1) in Seville (Spain) within two weeks of the entry into force of the contract to present the detailed work plan, including the draft questionnaire and the methodological approach for implementing the survey. The meeting will aim at refining the scope of the work, agreeing on the survey design and questionnaire, and discussing the overall approach and work plan.

6.2 Interim meetings

The contractor must organise two interim meetings via videoconference. The first interim meeting (M2) is to discuss the results from the pilot test and the fieldwork preparation phase as described in task 2.5, and must be organised two weeks after submission of deliverable D2.4.b and the second interim meeting (M3) is to discuss the completed dataset and must be organised one week after submission of D3.2.b.

6.3 Final meeting

The Contractor must organise a half-day final meeting (M4) by videoconference within fifty-two weeks of the entry into force of the contract to present the results of the survey and the analysis of the data collected. The final date of the meeting will be agreed by both parties.

The working language at all of these meetings will be English and the travel and accommodation costs for attending the kick-off meeting is deemed to be included in the final price indicated in the contract.

7 CALENDAR OF DELIVERABLES AND MEETINGS

The following summary table reports the tentative time schedule for the different activities and deliverables.

Deliverable	Title	Weeks
M1	Kick-off meeting (Seville, Spain)	T0 + 2
D1	Minutes Kick-off Meeting, as defined in work package 1	T0 + 3
D2.1	Report on sampling strategy	T0+8
D2.2	Final master questionnaire in English	T0+10
D2.3	Translated questionnaire (all languages) and related background note	T0+14
D2.4.a	Data set from the pilot survey	T0+18
D2.4.b	Interim report describing the results of the pilot exercise, and addressing any relevant issues emerged during the piloting and proposed solutions	T0+20
M2	Interim meeting (videoconference)	T0+22
D3.1.a	Preliminary data dump for internal review	T0+32
D3.1.b	Report on the fieldwork monitoring	T0+36

D3.1.c	Interim raw data set per country (Excel and Stata files), including database in English with all responses from all countries	T0+38
D3.2.a	Full clean data set of all results including weights (Excel and Stata files)	T0+44
D3.2.b	Codification manual	T0+44
M3	Interim meeting final data (videoconference)	T0+45
D3.3	Final Methodology report	T0+50
D4	Report with frequency tables at the country level	T0+52
M4	Final meeting (videoconference)	T0+52

T0 corresponds to the date on which the last party signs the contract.

8 QUALITY ASSURANCE

The contractor must establish robust means to ensure the reliability, validity and comparability of the information collected as well as the quality of its reporting, including a full and standard referencing of the sources used.

The work delivered by the contractor must be of such quality that it can be used to support policy making and that it is directly publishable by the European Commission as a part of its official publications.

In particular, the Project Manager nominated by the Contractor in the offer will be in charge of the scientific quality assurance tasks.

Before final acceptance, all reports will be completed, adapted and corrected by the Contractor who will fully take into account the comments, suggestions and additional written comments provided by the JRC-Seville.

9 DURATION

The performance of the tasks cannot start before the date on which the last party signs the contract, and should be finalised in a maximum of 52 weeks, including the time for the JRC

research team to comment the interim deliverables and the contractor to implement the suggested amendments. The time needed for possible comments and amendments to the final deliverable (D4) would be added to the total duration of the contract.

10 LANGUAGE

The language of all deliverables, meetings, presentations, and exchanges will be English.

It is expected that the written text in the deliverables is of high standard scientific language, ideas are expressed in a clear and logically structured way. The text of all deliverables will be strictly assessed according to these criteria in the review process.