



**EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL**

**Public Health Functions Unit**

**CALL FOR TENDERS**

**OJ/2023/PHF/26497**

**Artificial intelligence for surveillance and other  
core public health functions**

**Framework service contract**

**TENDER SPECIFICATIONS**

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## **1. INFORMATION ON TENDERING**

The European Centre for Disease Prevention and Control (ECDC) is an agency of the European Union, established by the European Parliament and Council Regulation 851/2004 of 21 April 2004. Further information about ECDC can be found on the ECDC [website](#).

This tender process is governed by Directive 2014/24/EU and Regulation 2018/1046.

### **Participation**

Participation in this procurement procedure is open on equal terms to all natural and legal persons coming within the scope of the Treaties, as well as to international organisations, established in the European Union, European Economic Area and Stabilisation and Association Agreements countries.

Please note that any attempt by a tenderer to obtain confidential information, enter into unlawful agreements with competitors or influence the evaluation committee or ECDC during the process of examining, clarifying, evaluating and comparing tenders will lead to the rejection of his tender and may result in administrative penalties.

### **Contractual conditions**

The tenderer should take note of that the provisions of the draft contract (see section 4. Annexes) which specifies the rights and obligations of the contractor, particularly those on payments, performance of the contract, confidentiality, intellectual property rights and checks and audits.

Signature of the framework contract imposes no obligation on ECDC to order services. Only the implementation of the framework contract through specific contracts/order forms is binding for ECDC.

Each specific contract/order form will contain details of deliverables and timelines for particular services to be provided.

ECDC wishes to conclude a single framework contract with one economic operator.

## **Compliance with applicable law**

The tender must comply with applicable environmental, social and labour law obligations established by Union law, national legislation, collective agreements or the international environmental, social and labour conventions listed in Annex X to Directive 2014/24/EU<sup>1</sup>.

## **Joint tenders**

A joint tender (such as a consortium) is a situation where a tender is submitted by a group of economic operators (natural or legal persons). Joint tenders may include subcontractors in addition to the members of the group.

In case of joint tender, all members of the group assume joint and several liability towards ECDC for the performance of the contract as a whole, i.e. both financial and operational liability. Nevertheless, tenderers must designate one of the economic operators as a single point of contact (the leader) for ECDC for administrative and financial aspects as well as operational management of the contract.

After the award, ECDC will sign the contract either with all members of the group, or with the leader on behalf of all members of the group, authorised by the other members via powers of attorney.

Any change in the composition of the group during the procurement procedure may lead to the rejection of the tender. Any change in the composition of the group after the signature of the contract may lead to the termination of the contract.

## **Subcontracting**

Subcontracting is permitted but the contractor will retain full liability towards ECDC for performance of the contract as a whole.

If subcontracting is envisaged, the tenderer must clearly indicate in the tender which parts of the work will be subcontracted.

If the tenderer relies on the subcontractors to fulfil the selection criteria (see section 3.2 Selection criteria), these subcontractors must provide a statement declaring their undertaking to collaborate with the tenderer in case of award, and the resources that they will put at the tenderers disposal for the performance of the contract.

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<sup>1</sup> Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC (OJ L 94, 28.3.2014, p. 65).

If the tenderer relies on the capacity of a subcontractor for economic and financial capacity, ECDC may require the third party to be jointly liable for the performance of the contract.

Tenderers are required to identify all subcontractors whose share of the contract is above 10 % and whose capacity is necessary to fulfil the selection criteria.

During contract performance, the change of any subcontractor identified in the tender or additional subcontracting will be subject to prior written approval of ECDC.

Where no subcontractor is given, the work will be assumed to be carried out directly by the tenderer.

### **Division into lots**

This contract is divided into 2 lots. The tenderer may apply for one or more lots.

Lot 1: General implementation of artificial intelligence

Lot 2: Improving social media monitoring for epidemic intelligence.

### **Structure and content of the tender**

The tenders must include the following:

- Part A: Identification of the tenderer
- Part B: Non-exclusion (see section 3.1 Verification of non-exclusion)
- Part C: Selection (see section 3.2 Selection criteria)
- Part D: Technical tender (see section 3.3 Award)
- Part E: Financial tender.

All tenders must contain a financial tender to be submitted **according to the form in** section 4. Annexes.

The tenderer's attention is drawn to the following points:

- The price for the tender must be quoted in euro. Tenderers from countries outside the euro zone have to quote their prices in euro. The price quoted may not be revised in line with exchange rate movements. It is for the tenderer to bear the risks or the benefits deriving from any variation.
- Prices must be quoted free of all duties, taxes and other charges, including VAT, as the European Union is exempt from such charges under Articles 3 and 4 of the Protocol on the privileges and immunities of the European Union. The amount of VAT may be shown separately.
- The quoted price must be a fixed amount which includes all charges (including travel and subsistence). Travel and subsistence expenses are not refundable separately.
- Tenders must be submitted through the electronic submission system (see point 1 in the Invitation to tender for further information).

**Make sure you submit your tender on time:** you are advised to start completing your tender early. To avoid any complications with regard to late receipt/non receipt of tenders within the deadline, please ensure that you submit your tender several hours before the deadline. A tender received after the deadline indicated in the procurement documents will be rejected.

### **Identification of the tenderer**

The tender must include a **cover letter** signed by an authorised representative presenting the name of the tenderer (including all entities in case of joint tender) and identified subcontractors if applicable, and the name of the single contact point (leader) in relation to this procedure.

In case of joint tender, the cover letter must be signed either by an authorised representative for each member, or by the leader authorised by the other members with powers of attorney. The signed powers of attorney must be included in the tender as well. Subcontractors that are identified in the tender must provide a letter of intent signed by an authorised representative stating their willingness to provide the services presented in the tender and in line with the present tender specifications.

All tenderers (including all members of the group in case of joint tender) must provide a signed Legal Entity Form with its supporting evidence. The form is available on:

[http://ec.europa.eu/budget/contracts\\_grants/info\\_contracts/legal\\_entities/legal\\_entities\\_en.cfm](http://ec.europa.eu/budget/contracts_grants/info_contracts/legal_entities/legal_entities_en.cfm)

Tenderers that are already registered in ECDC's accounting system (i.e. they have already been direct contractors) must provide the form but are not obliged to provide the supporting evidence.

The tenderer (or the leader in case of joint tender) must provide a Financial Identification Form with its supporting documents. Only one form per tender should be submitted. No form is needed for subcontractors and other members of the group in case of joint tender. The form is available on: [http://ec.europa.eu/budget/contracts\\_grants/info\\_contracts/index\\_en.cfm](http://ec.europa.eu/budget/contracts_grants/info_contracts/index_en.cfm)

The tenderer (and each member of the group in case of joint tender) must declare whether it is a Small or Medium Size Enterprise in accordance with [Commission Recommendation 2003/361/EC](#). This information is used for statistical purposes only.

### **Language**

Tenders must be submitted in one of the official languages of the European Union. ECDC prefers, however, to receive documentation in English. Nonetheless, the choice of language will not play any role in the consideration of the tender.

### **Additional information**

By virtue of Point 11.1(e) of Annex 1 FR (Financial Regulation 2018/1046), ECDC reserves the option to launch further negotiated procedure, with the contractor(s) chosen as a result of the present call for tender, for new services consisting in the repetition of similar services for up to 50% of the contractual amount during the three years following the signature of the original contract.

**Use of Electronic Procurement Tools (e-Procurement)**

The successful tenderer(s) shall take the appropriate measures to be compliant with e-invoicing and submit invoices through the system. The successful tenderer(s), whose tender was submitted as a joint tender, may be required to acquire a Global Location Number (GLN), at no additional cost for ECDC.

For additional information on ECDC's e-procurement tools, please refer to:

<https://ecdc.europa.eu/en/about-us/procurement-and-grants>.

**Public access to documents**

In the general implementation of its activities and for the processing of tendering procedures in particular, ECDC observes Regulation (EC) No. 1049/2001 of the European Parliament and of the Council of 30 May 2001 regarding public access to European Parliament, Council and Commission documents.



## 2. TECHNICAL SPECIFICATIONS

### **2.1. General background**

The article 3 of the ECDC founding regulation, the Decision No 1082/2013/EU on serious cross-border threats to health and the ECDC Strategy 2021-2027 have established the detection of public health threats as a core activity of ECDC.

The Regulation (EU) 2022/2370 amending the ECDC founding regulation (EC Number 851/2004)<sup>2</sup> establishes that ECDC “should be tasked with providing timely epidemiological information and analysis of that information, epidemiological modelling, anticipation and forecasting, and with providing timely relevant risk assessments and science-based recommendations, which set out options for the prevention and control of communicable diseases”. Likewise, it specifies that “with a view to enhancing the effectiveness of epidemiological surveillance, [ECDC] should be tasked with the continuous development of secure and interoperable digital platforms and applications, [...] enabling the use of digital technologies, such as artificial intelligence and computer modelling and simulation, in the compilation and analysis of data, and with providing [...] scientific and technical advice to establish integrated epidemiological surveillance systems”.

Moreover, article 14 of Regulation (EU) 2022/2371 on serious cross-border threats to health and repealing Decision 1082/2013/EU<sup>3</sup> defines the need of ensuring the “continued development of the digital platform for surveillance”, including the application of “artificial intelligence for data validation, analysis and automated reporting, including statistical reporting”.

ECDC detects public health threats through its Epidemic Intelligence (EI) processes. A component of this process involves screening media and social media information (i.e. event based surveillance), as indicated in article 14 of the regulation, and extracting openly available data, which usually are stored online, both in structured and unstructured forms.

Furthermore, ECDC monitors on a routine basis some epidemiological indicators for specific diseases such as COVID-19, dengue, cholera or measles and social media platforms as a source of early detection of public health threats. These data are used for timely monitoring and need to be collected, stored, processed and analysed on a regular basis. This monitoring has different challenges, including increased number of sources, changes in the sources, large amount of data and different types of formats for extracting the data (e.g., text, images or video).

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<sup>2</sup> <http://data.europa.eu/eli/reg/2022/2370/oj>

<sup>3</sup> <http://data.europa.eu/eli/reg/2022/2371/oj>

As of 2022, automatisisation of EI processes is mainly based on the use of R programming, with sporadic use of other technologies such as Scala and Python, which has required increasing the capacity on this type of technology for a sustainable use and maintenance of this.

ECDC aims to further improve the efficiency and timeliness of epidemic intelligence activities as well as activities in other areas of surveillance and other core public health functions through the application of artificial intelligence (AI), including automatisisation of processes, machine learning (ML) and deep learning (DL) algorithms and natural language processing (NLP).

Implementation of these technologies such as artificial intelligence will require training of ECDC experts in order to ensure practical implementation of outputs and/or methods, sustainability of the work and sufficient capacity and capability to handle the technology. ECDC staff expertise is very diverse going from advanced skills and expertise in programming to more basic or no knowledge on programming. Training of the experts from EU/EEA Member States is also envisaged in order to increase the use of such technologies in the field of public health.

This call for tender aims to establish a framework contract for the provision of services related to the above mentioned tasks.

## **2.2. Scope and objectives**

The **scope** of this call is to support ECDC with the implementation of artificial intelligence, including machine learning and deep learning, in the processes and tasks related to surveillance, scientific advice and modelling, and with the further improvement of early warning of public health threats using social media, as well as the related training required to properly handle and sustain these.

The overall **objectives** of this call for tender are:

- The development of machine/deep learning algorithms for improving processes and tasks from surveillance, scientific advice and modelling
- The development of trainings and workshops related to the above objective
- Improvement of social media monitoring for the early detection of public health threats.

## **2.3. Tasks, deliverables, quality requirements and timelines**

The detailed description of tasks, deliverables, quality requirements and timelines are provided in the sections below.

A summary table is provided for each lot that can be also used by the contractor to provide the cost of each deliverable. The scope of each lot is specified in sections 2.3.1 and 2.3.2.

### **Project management (Both lots)**

The project management is applicable for all lots. Each tenderer is expected to nominate a project manager as a single contact for ECDC for technical and operational issues related to the provision of the services. The project manager shall be responsible for overseeing the framework contract,

implementation of specific contracts and must be reachable during the implementation periods of the specific contracts.

The tasks of the profile (not exhaustive list) are listed below. The criteria and evidence applicable both to the project manager and to their back up are listed under Technical and professional capacity criteria.

#### Tasks:

- Monitoring and proactive management of the specific contracts to ensure implementation of the contract and services as per ECDC requirements
- Communication with ECDC project manager
- Organise kick-off meeting for each specific contract within ten working days after start of the contract and provide minutes of the meeting (main discussions, conclusions and action points, not *verbatim*) for ECDC approval within five working days of the kick-off meeting
- Organise regular meetings for each specific contract, at least every four weeks, and provide minutes of the meeting (main discussions, conclusions and action points, not *verbatim*) for ECDC approval within five working days of each meeting
- Management of risks and issues, including replacement of experts.

### 2.3.1. Lot 1: General implementation of AI

The scope of this lot is to support ECDC with the implementation of artificial intelligence, including machine learning and deep learning, in the processes and tasks related to surveillance and other core public health functions, as well as the related training required to properly handle and sustain these outputs.

No	Deliverable	Sub-deliverable
DL 1	Online Python training	DL1S1: Syllabus and training material
		DL1S2: Online training of 12 hours
		DL1S3: Evaluation report
DL 2	General AI, ML, DL and/or NLP workshop	DL2S1: Agenda, workshop material and list of participants
		DL2S2: Workshop
		DL2S3: Workshop report and evaluation report
DL 3	Scoping review on the use of AI in public health	DL3S1: Scoping review protocol and PRISMA-ScR checklist
		DL3S2: Interim scoping review report
		DL3S3: Final scoping review report
DL 4	Data pre-processing	DL4S1: R or Python code for data pre-processing

<b>DL 5</b>	<b>ML model for regression or classification problem</b>	DL5S1: Model pipeline
		DL5S2: Python code for regularisation, hyperparameter tuning and grid search
		DL5S3: Model results and evaluation
<b>DL 6</b>	<b>DL model for regression or classification problem</b>	DL6S1: Model pipeline
		DL6S2: Python code for regularisation, hyperparameter tuning and grid search
		DL6S3: Model results and evaluation
<b>DL 7</b>	<b>Unsupervised model</b>	DL7S1: Model pipeline
		DL7S2: Python code for regularisation, hyperparameter tuning and grid search
		DL7S3: Model results and evaluation
<b>DL 8</b>	<b>NLP model</b>	DL8S1: Data pre-processing
		DL8S2: NLP model
		DL8S3: Model results and evaluation
<b>DL 9</b>	<b>Explainable AI</b>	DL9S1: R or Python code with AI interpretability methods

### **Deliverable 1 (DL1): Online Python training**

**Timeline:** The estimated timeline is between one and two months to prepare the syllabus and training material (DL1S1), five to ten weeks for the online sessions depending on the length of each session and whether the sessions are consecutive or not (DL1S2), and four weeks for preparing and analysing the training evaluation (DL1S3), unless specified otherwise in the specific contract.

**Minimum quality requirement:** The training must address the needs stated in the specific contract; include clear learning objectives, accurate and relevant content, opportunities for learner engagement; be designed for usability, and have an evaluation that can inform improvement. Please see below general requirements regarding written deliverables.

The contractor will be responsible for the platform used for the online training. When appropriate, based on ECDC decision, these sessions will have restricted access requiring the platform used by the contractor to allow for limited access.

#### **Sub-deliverable 1 (DL1S1): Syllabus and training material.**

Development of the syllabus for the training and training material ahead of each session. ECDC will include a brief description on the aspects to be covered for each training in the specific contract

and will be discussed in the kick-off meeting of the specific contract. Syllabus should include objective, methods and datasets used in each session of each training (the duration of each session will depend on the division of the 12 hours of training specified in the specific contract).

Syllabus should be provided at least two weeks before the first session and first version of training material should be provided at least seven working days before each session to give enough time to ECDC to revise it and have enough time for the contractor to address all comments before each session.

ECDC will provide datasets to be used during the training.

All sessions and training material must be in English, and hands-on with demonstration and exercises. Exercises must be organised in breakout groups of maximum eight to ten participants. At least two facilitators should be provided by the contractor.

Solution to the exercises should be provided ahead of the sessions.

The theme(s) of the training include, but not only, introduction to Python, data analysis, data visualisation, and libraries for ML/DL/NLP. There will be three possible levels of trainings depending on the topic and depth covered by the training: basic, intermediate and advanced.

### **Sub-deliverable 2 (DL1S2): 12-hour online training**

Each online training will consist of 12 hours in total that can be divided in four sessions of three hours each or two sessions of 6 hours each.

The contractor will provide the platform. The platform should be able to create breakout rooms and facilitate the use of hands-on exercises as well as allow for an interactive chat.

Preferably, sessions will be organised no more frequent than once a week, unless specified otherwise in the request for service.

A maximum of 20 participants is expected to attend the training. Participants are expected to have from no previous knowledge of Python to basic/intermediate knowledge, and also from basic to intermediate/advance knowledge of R depending on the level of training (i.e., basic, intermediate or advanced).

Participants can be experts from ECDC or from EU/EEA Member States (MS). In case of the former, ECDC will identify the participants and in case of the latter, the MS will identify the people who should participate in the training and agree with ECDC who is to send out the invitations. ECDC will be responsible to identify and invite all participants to the training.

### **Sub-deliverable 3 (DL1S3): Evaluation report**

The contractor will develop a short survey in EU Survey or similar platform for participants for evaluating the sessions included in each training. ECDC will review the questions and survey before sending to the participants.

The evaluation report should include: a table of contents, list of abbreviations, training scope, executive summary, discussion on results/lessons learned, and conclusions. As part of the report, a final list of participants and agenda should be included.

## **Deliverable 2 (DL2): General AI, ML, DL and/or NLP workshop**

**Timeline:** The estimated timelines is between two to four months for preparing the agenda, workshop material and list of participants (DL2S1), two days for the workshop (DL2S2), and four to six weeks for preparing/analysing the workshop evaluation and preparing the meeting report (DL2S3), unless specified otherwise in the specific contract.

**Minimum quality requirements:** The workshop should have a clear definition of goals and purpose with a list of relevant participants for achieving these and facilitators should be prepared in advance to have a good knowledge on the topics covered in the agenda. In addition, and during the workshop, facilitators should keep the timing of the agenda and encourage discussions, capture the key aspects discussed during the workshop, and ensure the ground rules are followed. Please see below general requirements regarding written deliverables.

The contractor will take minutes/notes during the workshop for the workshop report and facilitate the workshop. The workshop report is not expected to be *verbatim*, rather a summary of the main points discussed and concluded during the workshop.

### **Sub-deliverable 1 (DL2S1): Agenda, workshop material and list of participants**

The scope of this workshop is to provide general knowledge on or discuss aspects in relation to AI, ML, DL and/or NLP to public health experts from ECDC or ECDC stakeholders including ministries of health, public health institutes, disease experts at national level, international public health organisation, among others.

Development of the agenda, workshop material and participants, in collaboration with ECDC. The workshop is expected to have keynote presentations from experts in the field, practical sessions with real life examples and breakout groups to discuss specific aspects of the topic in smaller groups.

Draft agenda should be provided at least three months before the workshop to give enough time to ECDC to revise it and have enough time for the contractor to address all comments, and a final draft should be provided at least one month prior to the workshop for the final review by ECDC. Final agenda should be provided to ECDC two weeks before the workshop or four weeks before the workshop if the workshop is foreseen by ECDC to require Declaration of Interest of the participants. ECDC will give the final approval of these materials prior to the workshop.

If Declaration of Interest are required, ECDC will be responsible to collect these.

### **Sub-deliverable 2 (DL2S2): Workshop**

Each workshop will consist of two days of 8 hours each with 20-30 non-ECDC and ECDC participants, and it can be a) completely online or b) completely in-person. The non-ECDC participants will be members of the ECDC national focal points and stakeholders of the ECDC

networks. The level of expertise of the participants in these topics may vary with an expected vast majority of experts without prior knowledge or minor knowledge on these.

ECDC will identify the participants of the workshop and, in case of non-ECDC participants, MSs or ECDC stakeholders will identify the people who should participate in the workshop and agree with ECDC who is to send out the invitations. ECDC will send out the invitations. ECDC will be responsible to identify and invite participants to the training. The contractor can suggest speakers to be invited to the workshop if agreed by ECDC.

If online, the contractor will provide the platform. The platform should be able to create breakout rooms and facilitate the use of hands-on exercises as well as allow for an interactive chat. If in-person, workshop will take place in Stockholm.

If in-person, the contractor must cover their own travelling/accommodation cost and provide at least two facilitators during the workshop. ECDC will cover and organise the travelling/accommodation cost of participants, if applicable, and the venue.

### **Sub-deliverable 3 (D2S3): Workshop report and evaluation report**

The contractor will develop a short survey in EU survey or similar platforms for participants for evaluating the workshop.

The workshop report should include: a table of contents, list of abbreviations, workshop scope, executive summary, discussion on results/lessons learned, summary of the survey's results, and conclusions/next steps and action points. As part of the report, a final list of participants and agenda should be included.

### **Deliverable 3 (DL3): Scoping review on the use of AI in public health**

**Timeline:** The estimated timeline is between two and four weeks for the protocol and PRISMA-ScR checklist (DL3S1), between four to six weeks after DL3S1 for the interim scoping review report (DL3S2), and between eight to ten weeks after DL3S2 for the final scoping review report (DL3S3), unless specified otherwise in the specific contract.

**Minimum quality requirements:** All scoping reviews performed under this contract are characterised by:

- Application of a rigorous process and appropriate quality control measures to minimise bias, and development of *a priori* protocol (as part of DL3S1) outlining the methodological approach and all relevant steps within the review
- Clear question or set of questions according to the specific contract
- Advance or expert search in at least five appropriate research literature and grey literature databases (e.g., Medline/PubMed, Embase, Cordis for EU funded projects, ACM library for information technology related topics) from 2010 onwards
- Pre-determined, transparent and clear selection criteria (inclusion and exclusion criteria)
- Appropriate, accurate and transparent data extraction and synthesis
- Complete and transparent documentation of the methods applied and steps taken, including possible amendments to the protocol, and complete and transparent reporting of findings using the appropriate templates based on the PRISMA statement and its extensions.

**Sub-deliverable 1 (DL3S1): Scoping review protocol and PRISMA-ScR checklist**

The contractor, in consultation with ECDC and depending on the specific objective of the specific contract, will develop the scoping review protocol, based on PRISMA-ScR: <https://prisma-statement.org/Extensions/ScopingReviews>. The protocol should include at least objective of the scoping review, bibliographic databases and information sources to be used, search strategy, eligibility criteria, and template/structure for data charting. The search criteria should be tested and revised as needed.

The contractor will develop and maintain the reference library, using an appropriate reference management software (the reference management software currently used at ECDC is EndNote). At the end of the contract, the contractor will hand over the reference library to ECDC.

**Sub-deliverable 2 (DL3S2): Interim scoping review report**

Development of the interim scoping review report with preliminary analysis of the review findings, based on PRISMA-ScR.

**Sub-deliverable (DL3S3): Final scoping review report**

Development of a final scoping review report in MS Word format and ready to be submitted to ECDC clearance for publication on ECDC website or in a peer-review journal. In case the report is to be submitted as a peer-review manuscript, contractor will be in charge of the submission to a scientific journal. Further work from co-authors (ECDC and non-ECDC) is expected to happen outside the duration of the contract depending on the feedback from the scientific journal. This further work carried out outside of the duration of the contract will not be paid for separately by ECDC and is considered part of the deliverable. In addition, development of separate high-resolution files for figures and other visuals as well as underlying data for reproduction of these visuals in case of further revision is needed during the submission to the peer-review journal.

In addition, development of separate high-resolution files for figures and other visuals as well as underlying data for reproduction of these visuals in case of further revision is required to be done by ECDC after the specific contract.

**Deliverable 4 (DL4): Data pre-processing**

The objective is to prepare data for the development of a specific ML, DL or NLP algorithm

**Timeline:** The estimated timeline is between one and two months, unless specified otherwise in the specific contract.

**Minimum quality requirements:** Please see below the minimum quality requirements applicable for all scripts

**Sub-deliverable 1 (DL4S1):** R or Python code for data pre-processing for a specific ML, DL or NLP algorithm (deliverables 5-8), including data cleaning, management of outliers and missing data, feature encoding and engineering, etc.

Selection of the programming language (R or Python) may vary depending on the specific contract.



**Deliverable 5 (DL5): Machine Learning (ML) model for regression or classification problem**

The objective is to prepare a ML model to solve a regression problem using k nearest neighbours (k-NN), linear regression, linear support vector machine (SVM) or similar methods; or to solve a classification problem using k nearest neighbours (k-NN), logistic regression, decision trees, random forest, linear or Radial basis function (RBS) support vector machine (SVM), or similar methods.

One to three different models may be included in the deliverable depending on the specific problem.

**Timeline:** The estimated time is between six and ten weeks, unless specified otherwise in the specific contract.

**Minimum quality requirements:** Please see below the minimum quality requirements applicable for all scripts

**Sub-deliverable 1 (DL5S1): Model pipeline**

Development of the model pipeline using Python scikit-learn library or similar.

**Sub-deliverable 2 (DL5S2): Python code for regularisation, hyperparameter tuning and grid search**

Development of Python code for regularisation, hyperparameter tuning and/or grid search to get the best performance of the model for the specific regression problem.

**Sub-deliverable 3 (DL5S3): Model results and evaluation**

Development of Python code with the final parameters of the model and evaluation of the model performance. The best evaluation parameters must be used to adapt to each model.

In case of having two or three models included, after selecting the best evaluation parameters for each model, a comparative evaluation should be done among the used models.

**Deliverable 6 (DL6): Deep Learning (DL) model for regression or classification problem**

The objective is to prepare a DL model to solve a regression or classification problem using neural networks, convolutional neural networks or similar methods.

**Timeline:** The estimated time is between eight and twelve weeks, unless specified otherwise in the specific contract.

**Minimum quality requirements:** Please see below the minimum quality requirements applicable for all scripts

**Sub-deliverable 1 (DL6S1): Model pipeline**

Development of the model pipeline using Python scikit-learn library or similar.

**Sub-deliverable 2 (DL6S2): Python code for regularisation, hyperparameter tuning and grid search**

Development of Python code for regularisation, hyperparameter tuning and/or grid search to get the best performance of the model for the specific regression problem.

**Sub-deliverable 3 (DL6S3): Model results and evaluation**

Development of Python code with the final parameters of the model and evaluation of the model performance. The best evaluation parameters must be used to adapt to each model.

**Deliverable 7 (DL7): Unsupervised model**

The objective is to prepare a ML/DL unsupervised model on clustering for anomaly detection, data/image clustering, segmentation, among others; or on dimensionality reduction for data compression, noise reduction and data visualisation, among others.

**Timeline:** The estimated time is between six and ten weeks, unless specified otherwise in the specific contract.

**Minimum quality requirements:** Please see below the minimum quality requirements applicable for all scripts

**Sub-deliverable 1 (DL7S1): Model pipeline**

Development of the model pipeline using Python scikit-learn library or similar.

**Sub-deliverable 2 (DL7S2): Python code regularisation, hyperparameter tuning and grid search**

Development of Python code for regularisation, hyperparameter tuning and/or grid search to get the best performance of the model for the specific regression problem.

**Sub-deliverable 3 (DL7S3): Model results and evaluation**

Development of Python code with the final parameters of the model and evaluation of the model performance. The best evaluation parameters must be used to adapt to each model.

**Deliverable 8 (DL8): Natural Language Processing model**

The objective is to develop an NLP model for summarising information, answering questions based on provided information, name entity recognition, feature extraction, text extraction from images, translation or sentiment analysis using Python, TensorFlow and Hugging Face or similar open-source platform(s). The concrete objective from these would be indicated in the specific contract.

**Timeline:** The estimated time is between eight and twelve weeks, unless specified otherwise in the specific contract.

**Minimum quality requirements:** Please see below the minimum quality requirements applicable for all scripts.

**Sub-deliverable 1 (DL8S1): Data pre-processing**

The following steps should be performed:

- Tokenisation: The text or initial output should be split into multiples sub-entities (i.e., tokens) at the sentence or word level.
- Text cleaning: Deleting words and items from a corpus of text data to enhance the efficiency of the model, such as stop words, capitalisation, punctuation, etc.
- Stemming or lemmatization: if necessary for or indicated in the specific request, tokens should be stemmed or lemmatized to reach the root or base word.
- Part-of-speech tagging, dependency phrasing case or constituency parsing: if necessary for or indicated in the specific requests, token should be categorised according to their category within the sentence, their particular part of speech and depending on the context (e.g., noun, verb, noun phrase, etc).

**Sub-deliverable 2 (DL8S2): NLP model**

The corresponding pipeline/model will be executed according to the underlying task.

The number of languages included in the specific tasks will relate to the available language models in the used platforms/technology. Single-language models should be prioritised over multiple-language models, depending on the specific task.

**Sub-deliverable 3 (DL8S3): Model results and evaluation**

Development of Python code for evaluating the model performance. The best evaluation parameters must be used to adapt to each model.

**Deliverable 9 (DL9): Code for explainable AI**

The objective of this deliverable is to develop R or Python code for improving the interpretability of AI models.

**Timeline:** The estimated time is between six and eight weeks, unless specified otherwise in the specific contract.

**Minimum quality requirements:** Please see below the minimum quality requirements applicable for all scripts

**Sub-deliverable 1 (DL9S1): R or Python code with AI interpretability methods**

Development of R or Python code with local and/or global model-agnostic methods and specific methods for DL interpretation. Some examples of methods used can be found in: <https://christophm.github.io/interpretable-ml-book/>.

Selection of the programming language (R or Python) may vary depending on the specific contract.

### 2.3.2. Lot 2: Improving social media monitoring for epidemic intelligence

The scope of this lot is to support ECDC with the further improvement of early warning of public health threats using social media, as well as the related training required to properly handle and sustain these outputs. Social media data and platform have a specific structure and challenges, having to differentiate them from the implementation of AI in other public health core areas.

No	Deliverable	Sub-deliverable
DL 1	<b>Improving R package for threat detection using social media</b>	DL1S1: Development and provision of a shared file on status of items to be implemented in the R package
		DL1S2: Development and provision of a new version of the R package ready to be submitted to CRAN
DL 2	<b>Support in installing R package for threat detection using social media</b>	DL2S1: Development and provision of a shared file on status of supported installations
		DL2S2: Completion of one installation of the R package
DL 3	<b>Review of data accessibility of social media platforms</b>	DL3S1: Development and provision of a review protocol
		DL3S2: Development and provision of interim review report
		DL3S3: Development and provision of final review report
DL 4	<b>Development of R package and Shiny app for early detection of public health threats from social media</b>	DL4S1: Development and provision of shared file on status of items to be developed
		DL4S2: Development and provision of interim version of package and Shiny app
		DL4S3: Performance of an expert consultation
		DL4S4: Development and provision of expert consultation report
		DL4S5: Development and provision of the new package and Shiny app ready to be submitted to CRAN
DL 5	<b>Online trainings for DLs 1 and 4</b>	DL5S1: Development and provision of syllabus and training material
		DL5S2: Provision of 12-hour online training
		DL5S3: Conduct and provide an evaluation report

#### Deliverable 1 (DL1): Improving R package for threat detection using social media

The objective is to create a new version of existing R packages for threat detection using social media, e.g., `epitweetr`, based on bugs/issues or new functionalities to improve its use.

The deliverable refers only to one package. If more than one package needs to be improved, several deliverables will be requested accordingly.

The following definitions apply:

- Minor error/bug: It does not affect to the functionality of the R package and can be solved by additional steps from the users (e.g., URL included in alert email doesn't work by clicking on it and requires the user to copy the URL from the email and paste it in the browser).
- Major error/bug: It affects to the functionality of the R package and cannot be solved by additional steps from the users. For example, vector languages are not available anymore not allowing the geolocation algorithm to work or major function(s) being deprecated that impact the normal functionality of the R package
- Minor development: It does not affect the major functionalities of the R package. For example, adding new visualisations to the dashboard or allowing the user to select which ML model to use for the signal classification indicating it in the training file.
- Major development: This affects the major functionalities of the R package. For example, changing the data storage or adding new page in the Shiny app.

A total of ten items from the previous definitions are included in this deliverable. If more than ten items are required, additional DL1 will be requested by ECDC accordingly.

- A minor error/bug counts as one item,
- Major error/bug and minor development as two items each
- Major development as three items each.

For clarification purposes, an example of this deliverable can contain one major development, two minor developments, one major error/bug and one minor error/bug, giving a total of ten items  $((1 \times 3) + (2 \times 2) + (1 \times 2) + (1 \times 1) = 10)$ .

The specific type(s) of item will be indicated in the specific request.

**Timeline:** The estimated timeline is between one and two weeks for the initial draft of DL1S1 and between four and six months for final DL1S1 and DL1S2, unless specified otherwise in the specific contract.

**Minimum quality requirements:** Please see below the minimum quality requirements applicable for all scripts. In addition, the new version of the R package must be fully tested and locally checked for CRAN compliance by the contractor.

### **Sub-deliverable 1 (DL1S1): Shared file on status of items to be implemented in the R package**

Development of a shared file describing the status of items included in the deliverable. This shared file should be accessible to at least the ECDC project manager and have the following information: period covered, user(s) reporting the error/bug when applicable, where the error/bug was reported (e.g., GitHub or email) when applicable, type of item and priority to be implemented.

### **Sub-deliverable 2 (DL1S2): New version of the R package ready to be submitted to CRAN**

The ECDC GitHub repository (or repository from similar platforms such as DevOps) of the R package should be cloned as a private repository with access granted to at least the ECDC project manager.

After implementing each item, testing must be done by the contractor and a new tar.gz file should be shared with ECDC for testing purposes in the ECDC Virtual Machines as well (Windows and Linux).

The final code should be pushed back to ECDC GitHub repository or similar platforms via a pull request. The final tar.gz file should be sent to ECDC for submitting to CRAN.

The contractor will support ECDC in addressing any comments raised by CRAN after submitting the package.

### **Deliverable 2 (DL2): Support in initial installation or troubleshooting of R package for threat detection using social media**

The objective is to support the initial installation or troubleshooting of one R package for threat detection using social media, e.g., epitweetr or any other similar R package developed by ECDC.

The deliverable refers only to one installation. If more than one installation needs to be done, several deliverables will be requested accordingly.

**Timeline:** The estimated timeline is between one and two weeks for the initial draft of DL2S2 and between three and five weeks for final DL2S1 and DL2S2, unless specified otherwise in the specific contract.

**Minimum quality requirements:** Please see below the minimum quality requirements applicable for all scripts. In addition, the new version of the R package must be fully tested and locally checked for CRAN compliance by the contractor.

#### **Sub-deliverable 1 (DL2S1): Shared file on status of supported installations**

Development of a shared file describing the status of supported installation(s) included in the specific contract. This shared file should be accessible at least to the ECDC project manager and have the following information: package(s) to be installed, period covered, user(s) requesting the installation, operating system, time for finalising the installation, issues encountered during the installation and priority for the installations.

#### **Sub-deliverable 2 (DL2S2): One installation of epitweetr or similar packages and final report**

Completing one installation or troubleshooting of ongoing installation of the R package at ECDC or ECDC stakeholders' machines. The installation can be done in Windows, Linux and Mac (less expected).

The contractor is expected to support users by attending to (video) calls, responding to emails or in GitHub until the installation of the package is successful. This can include support with identifying any operating system packages/software required for the functionalities of the R package.

In case an installation cannot be completed due to a bug/issue in the R package, it will be considered as the end of the support and will count the same as if the installation was successful.

A final summary report on the installation should be prepared by the contractor including the following information: characteristics of the machine, full description of issues encountered, stakeholder/user for which the installation was done, type of installation (individual, team, etc), and overall time required for the installation. In addition, in case an installation cannot be completed due to a bug/issue in the R package, the bug/issue must be fully reported for future consideration.

### **Deliverable 3 (DL3): Review of data accessibility of social media platforms**

The objective is to review the data accessibility from social media platforms.

**Timeline:** The estimated timeline is between two and four weeks for the protocol (DL3S1), between four to six weeks after DL3S1 for the interim review report (DL3S2), and between eight to ten weeks after DL3S2 for the final review report (DL3S3), unless specified otherwise in the specific contract.

**Minimum quality requirements:** All scoping reviews performed under this contract are characterised by:

Application of a rigorous process and appropriate quality control measures to minimise bias, and development of *a priori* protocol (as part of DL3S1) outlining the methodological approach and all relevant steps within the review

Clear question or set of question(s) according to the specific contract

Advance or expert search in at least five appropriate research literature and grey literature databases (e.g., Medline/PubMed, Embase, Cordis for EU funded projects, ACM library for information technology related topics) from 2010 onwards, as well as specific websites for social media platforms

Appropriate, accurate and transparent data extraction and synthesis

Complete and transparent documentation of the methods applied and steps taken, including possible amendments to the protocol, and complete and transparent reporting of findings.

#### **Sub-deliverable 1 (DL3S1): Review protocol**

Development of the protocol that will be used to perform the review of data accessibility from social media platforms. It should include the following information: social media platforms covered, search criteria (platforms/sources, keywords, time period covered, etc), information to be gathered (including but not only, requirements to access the data, cost, legal aspects, etc), available tools to collect data (e.g., APIs, packages from R or Python), and list of references.

#### **Sub-deliverable 2 (DL3S2): Interim review report**

Development of the interim review report with preliminary analysis of the review findings.

**Sub-deliverable 3 (DL3S3): Final review report**

Development of a final review report in MS Word format and ready to be submitted to ECDC clearance for publication on ECDC website or in a peer-review journal. In case the report is to be submitted as a peer-review manuscript, contractor will be in charge of the submission to a scientific journal. Further work from co-authors (ECDC and non-ECDC) is expected to happen outside the duration of the contract depending on the feedback from the scientific journal. In addition, development of separate high-resolution files for figures and other visuals as well as underlying data for reproduction of these visuals in case of further revision is needed during the submission to the peer-review journal.

**Deliverable 4 (DL4): Development of R package and Shiny app for early detection of public health threats from social media**

The objective is to develop an R package and Shiny app for early detection of public health threats from social media (i.e., monitoring trends with visualisations, configuration page and machine learning models to support the different functionalities), similar as *epitweetr* for Twitter data.

**Timeline:** The estimated timeline is between four and six weeks after specific contract signature for DL4S1, three months after DL4S1 for DL4S2, five months after DL4S1 for DL4S3, one month after DL4S3 for DL4S4, two months after DL4S4 for DL4S5, unless specified otherwise in the specific contract.

**Minimum quality requirements:** Please see below the minimum quality requirements applicable for all scripts. In addition, the R package must be fully tested and locally checked for CRAN compliance by the contractor.

**Sub-deliverable 1 (DL4S1): Shared file on status of items to be developed**

Development of a shared file describing the status of items included in the deliverable. This shared file should be available at least to the ECDC project manager and have the following information: development topic and subtopic, type of development, priority, status (to be done, to be tested, finalised), comments and any other relevant variable.

**Sub-deliverable 2 (DL4S2): Interim version of package and Shiny app**

Development of the interim package and Shiny app including at least the following functionalities: data collection, data processing, data aggregation, signal detection algorithm and visualisations. Additional functionalities such as troubleshoot functions, geolocation, data privacy/GDPR compliance functions and alerts classification can be in a preliminary or concept status.

All code and documents of the package and Shiny app must be stored in a private repository in GitHub with access granted to at least the ECDC project manager.

After implementing each item(s) as agreed with ECDC, testing must be done by the contractor and a new tar.gz file should be shared with ECDC for testing purposes in the ECDC Virtual Machines as well (Windows and Linux).



**Sub-deliverable 3 (DL4S3): Performance of an expert consultation**

Together with ECDC, organisation of an expert consultation via survey, focus groups or online meeting to present the interim package and Shiny app. The contractor will suggest the best approach which will be approved by ECDC before starting the consultation. This consultation must include possible end-users and experts in the field (social media monitoring, computational scientists, etc). The contractor can suggest participants and ECDC will select and invite the participants to the consultation.

The following aspects should be discussed: appropriateness of methods, usefulness of current features, new features, possible uses (mainly with potential end-users), etc. All the suggestions should be categorised according to the feasibility of implementation and the need or added value.

**Sub-deliverable 4 (DL4S4): Expert consultation report**

The expert consultation report should include: a table of contents, list of abbreviations, consultation scope, executive summary, discussion on aspects discussed and their categorisation as described in task 3 (DL13S3), and conclusions/next steps and action points. As part of the report, a final list of consulted experts and methods used during the consultation should be included.

The contractor will share with ECDC the initial draft of the report for revision. The contractor will address all ECDC comments and provide the final version to ECDC. ECDC will provide the contractor a template for preparing this report.

**Sub-deliverable 5 (DL4S5): New package and Shiny app ready to be submitted to CRAN**

After implementing each item(s) as agreed with ECDC, testing must be done by the contractor and a new tar.gz file should be shared with ECDC for testing purposes in the ECDC Virtual Machines as well (Windows and RStudio Linux).

After ECDC approval of the code, the final code should be pushed to ECDC GitHub repository via a pull request. The final tar.gz file should be sent to ECDC for submitting to CRAN.

The contractor will support ECDC in addressing any comments raised by CRAN after submitting the package.

**Deliverable 5 (DL5): Online trainings for DLs 1 and 4**

**Timeline:** The estimated timeline is between one and two months for preparing the syllabus and training material (DL5S1), five to ten weeks for the online sessions depending on the length of each session and whether the sessions are consecutive or not (DL5S2), and four weeks for preparing and analysing the training evaluation (DL5S3), unless specified otherwise in the specific contract.

**Minimum quality requirement:** The training must address the needs stated in the specific contract; include clear learning objectives, accurate and relevant content, opportunities for learner engagement; be designed for usability, and have an evaluation that can inform improvement. Please see below general requirements regarding written deliverables.

In addition, syllabus should include objective, methods and hands-on exercises used in each session.

The contractor will be responsible for the platform used for the online training. When appropriate, based on ECDC decision, these sessions will have restricted access requiring the platform used by contractor to allow for limited access.

Solution to the exercises should be provided ahead of the sessions.

### **Sub-deliverable 1 (DL5S1): Syllabus and training material**

Development of the syllabus for the training and training material ahead of each session. ECDC will include a brief description on the aspects to be covered for each training in the specific contract and will be discussed in the kick-off meeting of the specific contract. Syllabus should include objective, methods and examples used in each session.

Syllabus should be provided at least two weeks before the first session and training material should be provided at least two working days before each session to give enough time to ECDC to revise it and have enough time for the contractor to address all comments before each session.

ECDC will support the provision of examples to be used during the training.

Each session must be in English, and hands-on with demonstration and exercises. Exercises must be organised in breakout groups of maximum eight to ten participants. In case of training with less than eight participants, exercises can be done in the plenary room. At least one facilitator per group should be provided by the contractor.

The theme(s) of the training include use and maintenance of epitweetr and other R packages for early detection of public health threats using social media developed by ECDC.

ECDC will identify the participants of the training and, in case of non-ECDC participants, MSs or ECDC stakeholders will identify the people who should participate in the training and agree with ECDC who is to send out the invitations. ECDC will send out the invitations.

### **Sub-deliverable 2 (DL5S2): 12-hour online training**

Each online training will consist of 12 hours in total that can be divided in four sessions of three hours each or in two sessions of 6 hours each.

The contractor will provide the platform. The platform should be able to create breakout rooms and facilitate the use of hands-on exercises as well as allow for an interactive chat.

Preferably, sessions will be organised no more frequent than once a week, unless specified otherwise in the request for service.

A maximum of 20 participants is expected to attend the training. Participants are expected to be public health experts and users of these R packages with or without previous knowledge on these.

### **Sub-deliverable 3 (DL5S3): Evaluation report**

The contractor will develop a short survey for participants for evaluating the training.

#### **2.5. Horizontal aspects related to all deliverables/lots**

**Quality requirement:** Written deliverables should be of a high standard of English (C1 equivalent<sup>4</sup>) and delivered with a format using the ECDC template<sup>5</sup>, when indicated, and which will be provided by ECDC. The written deliverables should be written in British English grammar and spelling.

Deliverables planned for publication shall be scientifically sound, and suitable for publication for both quality and content. Necessary measures are applied to ensure quality and avoid plagiarism.

All scripts (R/Python code) should follow the ECDC working instructions on code quality. These includes the following quality principles:

- Maintainability: to isolate and correct defects or their cause, repair/replace faulty components without having to replace still working parts, prevent unexpected breakdowns, maximize code's useful life, efficiency, reliability and safety; meet new requirements, make future maintenance easier and cope with a changed environment.
- Naming: include naming conventions agreed to reduce efforts to read/understand source code, reduce time needed to agree or review issues regarding syntax and naming standards, and enhance source code appearing.
- Error handling: the code should have appropriate level of logging to facilitate troubleshooting and monitoring of possible issues to act upon them
- Reusability: the code should be reusable to avoid writing similar pieces of code or introducing more bugs, and to fix in one place instead of multiple places.
- Performance: optimisation to prevent timeouts and allow peak usage.
- Security: the code should follow the ECDC security policy.
- Testability: the code should be covered with an appropriate level of (automated) tests to prevent issues from re-appearing and validate functionality on a lower level to ensure functionality on a higher level.

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<sup>4</sup> Common European Framework of Reference for Languages: Learning, Teaching, Assessment (<http://www.coe.int/lang-cefr>)

<sup>5</sup> An example of a document with an ECDC template can be accessed here:  
[https://www.ecdc.europa.eu/sites/default/files/documents/SplDnet\\_Protocol\\_enhanced\\_surveillance-2018.pdf](https://www.ecdc.europa.eu/sites/default/files/documents/SplDnet_Protocol_enhanced_surveillance-2018.pdf)

The latest version of the ECDC working instructions on code quality, with specified details for each of the above quality principles will be shared with the contractor. Some of these details include, but not only:

- Uploading scripts to a private GitHub repository or similar to which at least the ECDC project manager can access
- Having in-lines comments in scripts clearly explaining each step/part of the script
- Creating a function when an action is being done repetitively in the scripts, instead of having baseline code.
- Organising the scripts in several sections including, but not only: brief description (title, objective, date of creation, author(s), etc), packages, importation of data and functions/external code, main core of the script, output exportation.
- Indicating any specific hardware/software requirements to properly execute the different scripts and packages must be specified in the corresponding deliverables.

**Business continuity:** The contractor shall ensure the continuity of the services during the entire duration of the projects, in particular proper business continuity shall be guaranteed when a member of the team becomes unavailable. In any case, the services will be provided in a timely manner.

**Replacement of team member:** At ECDC's request, the contractor must replace a team member who prove incapable of carrying out the specified tasks to the required standards (e.g. due to underperformance, improper conduct in service, prolonged absence). Any departure of a team member not requested by ECDC shall be communicated by the contractor without delay.

It shall be the contractor's responsibility to manage the replacement of their personnel/ sub-contractors to ensure that knowledge and information are transferred with minimum interruption of the services and that a high level of service quality is maintained at all times.

### **Digital workplace for Contractor's personnel**

The following tools may be used for developing the scripts:

- Own laptop (using GitHub or similar platform with access to at least ECDC project manager)
- Virtual Desktop / Machine (e.g. Azure Virtual Desktop)
- High Performance Computing environment (e.g. Azure HPC)
- Other tools as agreed in the kick-off meeting of specific contracts

The Contractor is expected to have an equivalent or better digital workplace as the one available at ECDC (incl. a laptop with sufficient specifications). ECDC may provide a remote secure access to which the consultant can connect to access ECDC systems and information.

The Contractor will need to consider how to develop the scripts when writing the code depending on the tool used. Different tools will need the code to be structured and written differently.

In case Microsoft Azure is used for deployment of deliverables, the code must successfully pass an IT Security validation before deployment to the ECDC cloud. The Contractor is expected to make themselves available in case of operational support needs, within the FWC period regardless of whether the specific contract has expired or not.

**Publication policy:** All publications using data funded by ECDC through this contract may be published only after written approval from ECDC, unless the data has entered the public domain or has otherwise been made publicly available by ECDC. Publications of national or sub-national data, that included data collected through this tender should acknowledge that part/ all study was funded through the project. The appropriate wording should be checked with the ECDC project manager before manuscript/publication submission.

The scientific manuscripts requested as deliverables from the project are intended to be submitted to a peer-reviewed journal with open access. The contractor should bear the cost of purchasing open access<sup>6</sup> (if not already submitted to an open access journal). The manuscripts should have shared authorship between ECDC co-authors and the contractor with at least two last ECDC authors (one of whom either second or last), taking into account the ECDC authorship policy<sup>7</sup>. The draft manuscripts with ECDC authors will need to be of high scientific quality and will need to undergo formal ECDC clearance before being submitted to a journal.

## **2.6. Place of performance**

All tasks are expected to be performed at the contractor's premises, with the exception of the in-person workshop as indicated in the technical specifications.

## **2.7. Intellectual property rights**

In accordance with Article II.13.1 of the contract (section 4. Annexes) whereby ECDC acquires ownership of the results as defined in the tender specifications, these results may be used for any purpose. In particular, as owner of the results, ECDC has the right to publish and distribute the results in any medium, altering, adapting or modifying the results, reproducing in an unlimited amount of copies and of further transferring of the rights acquired.

## **2.8. Moral rights of the authors and respect of ethical principles**

The contractor is responsible that all contributors and listed authors are taking all necessary precautions to avoid plagiarism, i.e. the contractor ensures correct citation, quotation and attribution, ensures that the deliverable does not contain copied and plagiarized content and that all necessary permissions have been obtained before submission of the deliverable to ECDC.

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<sup>6</sup> <https://www.ecdc.europa.eu/sites/default/files/documents/internal-policy-on-open-access.pdf>

<sup>7</sup> <https://www.ecdc.europa.eu/en/publications-data/internal-policy-authorship-and-acknowledgement-contribution-scientific-work-and>

Where applicable to a specific result, moral rights of the authors will be acknowledged according to the IP on authorship:

<https://ecdc.europa.eu/sites/portal/files/documents/ECDC%20authorship%20internal%20policy.pdf>

### **3. EVALUATION AND AWARD**

The evaluation is based solely on the information provided in the submitted tender. It involves the following:

- Verification of non-exclusion of tenderers on the basis of the exclusion criteria
- Selection of tenderers on the basis of selection criteria
- Verification of compliance with the minimum requirements set out in these tender specifications
- Evaluation of tenders on the basis of the award criteria

ECDC may reject abnormally low tenders, in particular if it established that the tenderer or a subcontractor does not comply with applicable obligations in the fields of environmental, social and labour law.

ECDC will assess these criteria in no particular order. The successful tenderer(s) must pass all criteria to be awarded the contract.

#### **3.1. Verification of non-exclusion**

All tenderers must provide a declaration on honour (see section 4. Annexes), signed and dated by an authorised representative, stating that they are not in one of the situations of exclusion listed in that declaration on honour.

In case of joint tender, each member of the group must provide a declaration on honour signed by an authorised representative.

In case of subcontracting, all subcontractors whose capacity is necessary to fulfil the selection criteria must provide a declaration on honour signed by an authorised representative.

ECDC reserves the right to verify whether the successful tenderer(s) is in one of the situations of exclusion by requiring the supporting documents listed in the declaration of honour.

The successful tenderer(s) must provide the documents mentioned as supporting evidence in the declaration on honour before signature of the contract and within a deadline given by ECDC. This requirement applies to each member of the group in case of joint tender and to all subcontractors whose capacity is necessary to fulfil the selection criteria.

The obligation to submit supporting evidence does not apply to international organisations.

A tenderer (or a member of the group in case of joint tender, or a subcontractor) is not required to submit the documentary evidence if it has already been submitted for another procurement procedure and provided the documents were issued not more than one year before the date of their request by ECDC and are still valid at that date. In such cases, the tenderer must declare on its honour that the documentary evidence has already been provided in a previous procurement procedure, indicate the reference of the procedure and confirm that there has been no change in its situation.

### **3.2. Selection criteria**

Tenderers must prove their legal, regulatory, economic, financial, technical and professional capacity to carry out the work subject to this procurement procedure.

The tenderer may rely on the capacities of other entities, regardless of the legal nature of the links which it has with them. It must in that case prove to ECDC that it will have at its disposal the resources necessary for performance of the contract, for example by producing an undertaking on the part of those entities to place those resources at its disposal.

The tender must include the proportion of the contract that the tenderer intends to subcontract.

#### **3.2.1. Declaration and evidence**

The tenderers (and each member of the group in case of joint tender) and subcontractors whose capacity is necessary to fulfil the selection criteria must provide the declaration on honour (see section 4. Annexes), signed and dated by an authorised representative, stating that they fulfil the selection criteria applicable to them individually. For the criteria applicable to the tenderer as a whole the tenderer (sole tenderer or leader in case of joint tender) must provide the declaration on honour stating that the tenderer, including all members of the group in case of joint tender and including subcontractors if applicable, fulfils the selection criteria for which a consolidated assessment will be carried out.

This declaration is part of the declaration used for exclusion criteria (see section 3.3.2 Award criteria) so only one declaration covering both aspects should be provided by each concerned entity.

The tenderers are also required to provide the evidence mentioned below. This requirement applies to each member of the group in case of joint tender and to subcontractors whose capacity is necessary to fulfil the selection criteria.

A tenderer (or a member of the group in case of joint tender, or a subcontractor) is not required to submit the documentary evidence if it has already been submitted for another procurement procedure and provided the documents were issued not more than one year before the date of their request by ECDC and are still valid at that date. In such cases, the tenderer must declare on its honour that the documentary evidence has already been provided in a previous procurement procedure, indicate the reference of the procedure and confirm that there has been no change in its situation.



### 3.2.2. Legal and regulatory capacity

#### Criteria:

Tenderers must prove that they are allowed to pursue the professional activity necessary to carry out the work subject to this call for tenders. The tenderer (including each member of the group in case of joint tender) must provide the following information in its tender if it has not been provided with the Legal Entity Form:

- For legal persons, a legible copy of the notice of appointment of the persons authorised to represent the tenderer in dealings with third parties and in legal proceedings, or a copy of the publication of such appointment if the legislation applicable to the legal person requires such publication. Any delegation of this authorisation to another representative not indicated in the official appointment must be evidenced.
- For natural persons, if required under applicable law, a proof of registration on a professional or trade register or any other official document showing the registration number.

#### Evidence:

The tenderer shall provide a duly filled in and signed Legal Entity Form (see section 4. Annexes) accompanied by the documents requested therein.

(Where the tenderer has already signed another contract with ECDC, they may provide instead of the legal entity file and its supporting documents a copy of the legal entity file provided on that occasion, unless a change in his legal status occurred in the meantime).

### 3.2.3. Economic and financial capacity criteria

#### Criteria:

The tenderer must have the necessary economic and financial capacity to perform this contract until its end. In order to prove their capacity, the tenderer must comply with the following selection criteria.

The tenderer must be in a stable financial position and have the economic and financial capacity to perform the contract.

The tenderer must have for each of the past two financial years for which accounts have been closed, an average annual turnover of at least **Lot 1: € 1,025,000, Lot 2 € 500,000**. This criterion applies to the tenderer as a whole, i.e. the combined capacity of all members of a group in case of a joint tender. If the tenderer applies to multiple lots, the required average annual turnover amounts will not be added together but the evaluation will be done in parallel.

In the case of tenderers from outside Eurozone, ECDC will calculate amounts of turnovers using exchanges rates for December of the relevant financial year as published in the Official Journal of the European Union.

**Evidence:**

Duly completed and signed Simplified Financial Statement (see link in section 4. Annexes), and the following depending on the legal form.

For Profit Organisations (whose primary goal is making a profit):

- copy of the profit & loss account and balance sheet for the last two years for which accounts have been closed.

For non-Profit Organisations (formed for the purpose of serving a public or mutual benefit other than the pursuit or accumulation of profits for owners or investors):

- copy of the statement of financial activities and statement of the financial position for the last two years for which accounts have been closed.

For Public sector entities (including public universities and international organizations), which according to the law of the country in which they are established are NOT required to publish balance sheets:

- only complete line 14 (Revenue) of the Simplified Financial Statement (version for non-profit organisations) available in section 4. Annexes;
- extracts from their last two budgets (including the current one) as evidence of their average budget amounting to at least the value indicated above (under "Criteria").

For Individuals:

- only complete line 14 (Revenue) of the Simplified Financial Statement (version for non-profit organisations), available in section 4. Annexes;
- provide extracts from any available documents (e.g. income tax returns) as evidence on their average income for the last two financial years amounting to at least the value indicated above (under "Criteria").

If, for some exceptional reason which ECDC considers justified, a tenderer is unable to provide one or other of the above documents, it may prove its economic and financial capacity by any other document which ECDC considers appropriate. In any case, ECDC must at least be notified of the exceptional reason and its justification. ECDC reserves the right to request any other document enabling it to verify the tenderer's economic and financial capacity.

**3.2.4. Technical and professional capacity criteria****3.2.4.1. Lot 1****Criteria relating to tenderers**

Tenderers (in case of a joint tender the combined capacity of all members of the group and identified subcontractors) must comply with the criteria listed below.

- **Criterion A1:** Capacity to work in English (C1 equivalent<sup>8</sup>).

*Evidence A1:* References for two projects delivered in the last three years showing the necessary language coverage.

- **Criterion A2:** Capacity to draft reports and documents in English (C1<sup>9</sup>).

*Evidence A2:* One document of at least 10 pages (report, study, etc.) in English that it has drafted and published or delivered to a client in the last two years.

- **Criterion A3:** Minimum of 5 years of experience in the field of artificial intelligence in healthcare, public health or related sectors.

*Evidence A3:* Project references consisting in a list of relevant services provided in the past six years, with the sums, dates and clients, public or private, accompanied by statements issued by the clients. In case of confidentiality, the client's name can be substituted by size, location and theme area of the company.

- **Criterion A4:** Minimum of three years in providing trainings to expert and/or non-expert audience in artificial intelligence and Python.

*Evidence A4:* Training references consisting in a list of relevant trainings provided in the past six years.

### **Criteria relating to the team delivering the service**

The team delivering the service should include, as a minimum, the profiles listed below.

Evidence will consist in CVs of the team responsible to deliver the service. Each CV should indicate the intended function in the delivery of the service.

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<sup>8</sup> Common European Framework of Reference for Languages: Learning, Teaching, Assessment (<http://www.coe.int/lang-cefr>)

<sup>9</sup> See [http://www.coe.int/t/dg4/linguistic/Cadre1\\_en.asp](http://www.coe.int/t/dg4/linguistic/Cadre1_en.asp)

- **Criterion B1: Language quality check.** All members of the team should have at least B2 level and at least one member of the team should have at least C1 level in the Common European Framework for Reference for Languages<sup>10</sup> in English.

Evidence B1: Language certificate or CV (preferably in Europass format) detailing past experience in English such as working in an English speaking environment, appropriate level of studies or English as mother tongue.

- **Criterion B2: Project Manager of specific contracts.** The project management of specific contracts can be performed by profiles described in criteria B3 or B4 as long as the following requirements are also met. This is a separate profile than the manager of the overall framework contract and does not apply for the management of the overall framework contract.

- With minimum a level of education which corresponds to completed university studies of at least three years attested by a diploma in the fields of statistics, epidemiology, mathematics, computer science, public health, or any other related field.
- With minimum five years' experience in the fields of management of scientific projects, including planning, risk mitigation, and internal and external communication.

Evidence B2: CV (preferably in Europass format).

- **Criterion B3: Senior Epidemiologist** (for DLs 1-3). The candidate must include minimum one profile.

- With minimum a level of education which corresponds to completed university studies of at least three years attested by a diploma in the fields of public health, epidemiology, health sciences, medicine, veterinary medicine, infectious diseases or related area. Alternatively, a post-graduate degree in applied field epidemiology (e.g. EPIET or equivalent such as national field epidemiology training programme);
- With minimum six years of professional experience (following the award of the diploma) in the areas of public health and epidemiology; of which four years of experience in analysis and interpretation of scientific information, surveillance activities and/or applied research studies;
- With experience in organising, providing, teaching or facilitating trainings in these fields for basic and advanced audience(s).

Evidence B3: CV (preferably in Europass format).

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<sup>10</sup> See [http://www.coe.int/t/dg4/linguistic/Cadre1\\_en.asp](http://www.coe.int/t/dg4/linguistic/Cadre1_en.asp)

**- Criterion B4: Senior Data Scientist** (for DLs 1-2, 4-9). The candidate must include minimum one profile.

- With minimum a level of education which corresponds to completed university studies of at least three years attested by a diploma in the fields of computer science, engineering, data science or relevant field;
- With minimum six years of professional experience (following the award of the diploma) acquired in positions related to the aforementioned duties including data management and analysis and machine-/deep-learning and operations research; of which three years of extensive knowledge of Python and/or R;
- With experience in organising, providing or facilitating trainings in these fields for basic and advanced audience(s);
- With experience in communicating results to different audiences (conferences, peer-review publications, scientific meetings, etc).

Evidence B4: CV (preferably in Europass format).

**- Criterion B5: Senior Python programmer** (for DLs 1, 5-8, and 4 and 9 when indicated). The candidate must include minimum one profile

- With minimum a level of education which corresponds to completed university studies of at least three years attested by a diploma in the fields of computer science, statistics, bioinformatics, epidemiology or equivalent;
- With minimum six years of professional experience (following the award of the diploma) acquired in positions related to the aforementioned duties; of which four years on machine-/deep-learning, natural language processing and data management and analysis;
- With minimum six years of experience in using Python programming or developing Python applications or packages;
- With experience in providing, teaching or facilitating trainings in these fields for basic and advanced audience(s).

*NB*: Experience can be combined so in case of positions including multiple of the above requirements the longest minimum experience duration must be covered.

Evidence B5: CV (preferably in Europass format).

**- Criterion B6: Python programmer** (for DLs 1, 5-8, and 4 and 9 when indicated). The candidate must include minimum one profile

- With minimum a level of education which corresponds to completed university studies of at least three years attested by a diploma in the fields of computer science, statistics, bioinformatics, epidemiology or equivalent; or a post-secondary education attested by a diploma and appropriate experience of two years;
- With minimum three years of professional experience (following the award of the university study diploma) or five years of professional experience (following the award of the post-secondary education diploma) acquired in positions related to the aforementioned duties; of which four year on machine-/deep-learning, natural language processing and data management and analysis;
- With minimum three years of experience in using Python programming or developing Python applications or packages.

*NB: the years of minimum experience shall be counted as consecutive and so in case of positions including multiple of the above requirements the duration is combined.*

Evidence B6: CV (preferably in Europass format).

**- Criterion B7: Senior R programmer** (for DLs 4 and 9 when indicated). The candidate must include minimum one profile

- With minimum a level of education which corresponds to completed university studies of at least three years attested by a diploma in the fields of computer science, statistics, bioinformatics, epidemiology or equivalent;
- With minimum six years of professional experience (following the award of the diploma) acquired in positions related to the aforementioned duties; of which four year on machine-/deep-learning, natural language processing and data management and analysis;
- With minimum six years of experience in using R programming or developing R applications or packages;
- With experience in providing, teaching or facilitating trainings in these fields for basic and advanced audience(s).

*NB:* Experience can be combined so in case of positions including multiple of the above requirements the longest minimum experience duration must be covered.

Evidence B7: CV (preferably in Europass format).

**- Criterion B8: R programmer** (for DLs 4 and 9 when indicated). The candidate must include minimum one profile

- With minimum a level of education which corresponds to completed university studies of at least three years attested by a diploma in the fields of computer science, statistics, bioinformatics, epidemiology or equivalent; or a post-secondary education attested by a diploma and appropriate experience of two years;
- With minimum three years of professional experience (following the award of the university study diploma) or five years of professional experience (following the award of the post-secondary education diploma) acquired in positions related to the aforementioned duties; of which four year on machine-/deep-learning, natural language processing and data management and analysis;
- With minimum three years of experience in using R programming or developing R applications or packages.

*NB:* Experience can be combined so in case of positions including multiple of the above requirements the longest minimum experience duration must be covered.

Evidence B8: CV (preferably in Europass format).

### **3.2.4.2. Lot 2**

#### **Criteria relating to tenderers**

Tenderers (in case of a joint tender the combined capacity of all members of the group and identified subcontractors) must comply with the criteria listed below.

- **Criterion A1:** Capacity to work in English (C1 equivalent<sup>11</sup>).

*Evidence A1:* References for two projects delivered in the last three years showing the necessary language coverage.

- **Criterion A2:** Capacity to draft reports and documents in English (C1<sup>12</sup>).

*Evidence A2:* One document of at least 10 pages (report, study, etc.) in English that it has drafted and published or delivered to a client in the last two years.

- **Criterion A3:** Minimum of 5 years of experience in the field of artificial intelligence in healthcare, public health or related sectors.

*Evidence A3:* Project references consisting in a list of relevant services provided in the past six years, with the sums, dates and clients, public or private, accompanied by statements issued by the clients. In case of confidentiality, the client's name can be substituted by size, location and theme area of the company.

- **Criterion A4:** Minimum of three years in providing trainings to expert and/or non-expert audience in artificial intelligence and Python.

*Evidence A4:* Training references consisting in a list of relevant trainings provided in the past six years.

### **Criteria relating to the team delivering the service**

The team delivering the service should include, as a minimum, the profiles listed below.

- **Criterion B1: Language quality check.** All members of the team should have at least B2 level and at least one member of the team should have at least C1 level in the Common European Framework for Reference for Languages<sup>13</sup> in English.

*Evidence B1:* Language certificate or CV (preferably in Europass format) detailing past experience in English such as working in an English speaking environment, appropriate level of studies or English as mother tongue.

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<sup>11</sup> Common European Framework of Reference for Languages: Learning, Teaching, Assessment (<http://www.coe.int/lang-cefr>)

<sup>12</sup> See [http://www.coe.int/t/dg4/linguistic/Cadre1\\_en.asp](http://www.coe.int/t/dg4/linguistic/Cadre1_en.asp)

<sup>13</sup> See [http://www.coe.int/t/dg4/linguistic/Cadre1\\_en.asp](http://www.coe.int/t/dg4/linguistic/Cadre1_en.asp)

**Criterion B2: Project Manager.** The project management of specific contracts can be performed by criteria B3 or B4 as long as the following requirements are also met. This is a separate profile than the manager of the overall framework contract and does not apply for the management of the overall framework contract.

- With minimum a level of education which corresponds to completed university studies of at least three years attested by a diploma in the fields of statistics, epidemiology, mathematics, computer science, public health, or any other related field.
- With minimum five years' experience in the fields of management of scientific projects, including planning, risk mitigation, and internal and external communication.

Evidence B2: CV (preferably in Europass format).

**- Criterion B3: Senior Epidemiologist.** The candidate must include minimum one profile.

- With minimum a level of education which corresponds to completed university studies of at least three years attested by a diploma in the fields of public health, epidemiology, health sciences, medicine, veterinary medicine, infectious diseases or related area. Alternatively, a post-graduate degree in applied field epidemiology (e.g. EPIET or equivalent such as national field epidemiology training programme);
- With minimum six years of professional experience (following the award of the diploma) in the areas of public health and epidemiology; of which four years of experience in analysis and interpretation of scientific information, surveillance activities and/or applied research studies;
- With experience in organising, providing, teaching or facilitating trainings in these fields for basic and advanced audience(s).
- Experience with social media data or social media applications for public health or health sciences is advantageous.

Evidence B3: CV (preferably in Europass format).

**- Criterion B4: Senior Data Scientist.** The candidate must include minimum one profile.

- With minimum a level of education which corresponds to completed university studies of at least three years attested by a diploma in the fields of computer science, engineering, data science or relevant field.
- With minimum six years of professional experience (following the award of the diploma) acquired in positions related to the aforementioned duties including data management and analysis and machine-/deep-learning and operations research; of which three years of extensive knowledge of R and familiarity with Python, Scala or Java.
- With experience in providing, teaching or facilitating trainings in these fields for basic and advanced audience(s).
- With experience on social media data or social media applications for public health or health sciences.
- With experience in communicating results to different audiences (conferences, peer-review publications, scientific meetings, etc).

Evidence B4: CV (preferably in Europass format).



**- Criterion B5: R programmer.** The candidate must include minimum one profile

- With minimum a level of education which corresponds to completed university studies of at least three years attested by a diploma in the fields of computer science, statistics, bioinformatics, epidemiology or equivalent; or a post-secondary education attested by a diploma and appropriate experience of two years;
- With minimum three years of professional experience (following the award of the university study diploma) or five years of professional experience (following the award of the post-secondary education diploma) acquired in positions related to the aforementioned duties;
- With minimum three years of experience in using R programming developing applications or packages.

*NB:* Experience can be combined so in case of positions including multiple of the above requirements the longest minimum experience duration must be covered.

*Evidence B5:* CV (preferably in Europass format).

### **3.3. Award**

#### **3.3.1. Lot 1**

##### **3.3.1.1. Technical tender**

The technical tender must cover all aspects and tasks required in the technical specifications and provide all the information needed to apply the award criteria (see section 3.3.2 Award criteria). Tenders deviating from the requirements or not covering all requirements may be rejected on the basis of non-compliance with the tender specifications and will not be evaluated.

In particular, the technical tender should include:

- Quality of the proposed methodology:
  - A description of the proposed methods to be used to meet the objectives of the technical specifications for each deliverable;
  - Assessment of the main issues, limitations, risks of the analyses to be carried out as well as the proposed mitigation measures.
- Organisation of the work:
  - Work organisation and planning (including major milestones and dates for meetings with ECDC to report on progress), description of the involvement of the proposed key experts (roles and responsibilities) and strategies on how to deal with having parallel specific contracts to execute the planned activities;
  - A description of the quality control system applied to the members of the team, especially regarding their up-to-date technical skills and how to ensure continuity of the service in case of absences.
- Quality control:
  - A description of the quality control system applied to any R/Python code to be provided, especially how to ensure its fitness for purpose and its user-friendliness including how to enable ECDC to take over, understand, use, maintain and adapt the code on its own;
  - A description of the quality control system applied to the remaining deliverables, especially how to ensure its fitness for purpose, their quality and language check.

**3.3.1.2. Award criteria**

The framework contract(s) will be awarded based on the most economically advantageous tender(s), according to the 'best price-quality ratio' award method. The quality of the tender will be evaluated based on the following criteria. The maximum total quality score is 100 points.

No	Award criteria	Max points
1	<b>Quality of the proposed methodology</b>	55
	Methods - This sub-criterion will assess how the tenderer has described the approach and methods proposed to be applied to meet the objectives of the technical specifications (35)	
	Risk mitigation - This sub-criterion will assess how the tenderer has described the difficulties, limitations and risks of the methodology as well the proposed mitigations by the tenderer (20)	
2	<b>Organisation of the work</b>	25
	Planning – This sub-criterion will assess how the tenderer has described the work organisation and planning, involvement of the proposed key experts and dealing with parallel specific contracts to execute the planned activities (15)	
	Team members – This sub-criterion will assess the proposed quality control system applied to the team members regarding their up-to-date technical skills and how to ensure continuity of the service (10)	
3	<b>Quality control</b>	20
	R/Python scripts – This sub-criterion will assess how the tenderer has described the quality control system applied to any R/Python code, especially how to ensure its fitness for purpose and its user-friendliness including how to enable ECDC to take over, understand, use, maintain and adapt the code on its own (10)	
	Deliverables – This sub-criterion will assess how the tenderer has described the quality control system applied to the remaining deliverables, especially how to ensure its fitness for purpose, their quality and language check (10)	
	<b>TOTAL</b>	<b>100</b>

Tenders must score minimum 60% for each criterion and sub-criterion, and minimum 70% in total. Tenders that do not reach the minimum quality levels will be rejected and will not be ranked.

**3.3.1.3. Ranking of tenders**

The contract(s) will be awarded to the most economically advantageous tender(s), i.e. the tender(s) offering the best price-quality ratio determined in accordance with the formula below.

A weight of 40/60 is given to price and quality.

score for tender X	=	cheapest price*	*	100	*	0.4	+	total quality score (out of 100) for all award criteria of tender X	*	0.6
		price of tender X								

Price of tender X" is the "Reference price" in the Financial tender (see section 4. Annexes).

The tender(s) ranked first, second or third after applying the formula will be awarded the framework contract(s).

### **Remarks:**

Tenderers' attention is drawn to the fact that ECDC will be in a position to make a proper assessment of the tenders on the basis of the above qualitative criteria only if they contain full particulars relating to all aspects of this specification. Lack of detail and vague and perfunctory information will be penalised.

As the tenders will be evaluated on the basis of the quality of the services proposed, they should fully explore all the points included in this specification so as to obtain the best possible mark.

Simply repeating the guidelines given in the specification of this invitation to tender without going into detail or expanding on them will result in a very poor mark.

Furthermore, if any essential points of this specification are not expressly covered by the tender, ECDC may decide to give a zero mark for the relevant quality award criteria.

## **3.3.2. Lot 2**

### **3.3.2.1. Technical tender**

The technical tender must cover all aspects and tasks required in the technical specifications and provide all the information needed to apply the award criteria (see section 3.3.2 Award criteria). Tenders deviating from the requirements or not covering all requirements may be rejected on the basis of non-compliance with the tender specifications and will not be evaluated.

In particular, the technical tender should include:

- Quality of the proposed methodology:
  - A description of the proposed methods to be used to meet the objectives of the technical specifications for each deliverable;
  - Assessment of the main issues, limitations, risks of the analyses to be carried out as well as the proposed mitigation measures.
- Organisation of the work:
  - Work organisation and planning (including major milestones and dates for meetings with ECDC to report on progress), description of the involvement of the proposed key experts (roles and responsibilities) and strategies on how to deal with having parallel specific contracts to execute the planned activities;
  - A description of the quality control system applied to the members of the team, especially regarding their up-to-date technical skills and how to ensure continuity of the service in case of absences.
- Quality control:
  - A description of the quality control system applied to any R script or package to be provided, especially how to ensure its fitness for purpose and its user-friendliness

including how to enable ECDC to take over, understand, use, maintain and adapt the code on its own;

- A description of the quality control system applied to the remaining deliverables, especially how to ensure its fitness for purpose, their quality and language check.

### 3.3.2.2. Award criteria

The framework contract(s) will be awarded based on the most economically advantageous tender(s), according to the 'best price-quality ratio' award method. The quality of the tender will be evaluated based on the following criteria. The maximum total quality score is 100 points.

No	Award criteria	Max points
1	<b>Quality of the proposed methodology</b>	55
	Methods - This sub-criterion will assess how the tenderer has described the approach and methods proposed to be applied to meet the objectives of the technical specifications (35)	
	Risk mitigation - This sub-criterion will assess how the tenderer has described the difficulties, limitations and risks of the methodology as well the proposed mitigations by the tenderer (20)	
2	<b>Organisation of the work</b>	25
	Planning – This sub-criterion will assess how the tenderer has described the work organisation and planning, involvement of the proposed key experts and dealing with parallel specific contracts to execute the planned activities (15)	
	Team members – This sub-criterion will assess the proposed quality control system applied to the team members regarding their up-to-date technical skills and how to ensure continuity of the service (10)	
3	<b>Quality control</b>	20
	R scripts and packages – This sub-criterion will assess how the tenderer has described the quality control system applied to any R script of package, especially how to ensure its fitness for purpose and its user-friendliness including how to enable ECDC to take over, understand, use, maintain and adapt the code on its own (10)	
	Deliverables – This sub-criterion will assess how the tenderer has described the quality control system applied to the remaining deliverables, especially how to ensure its fitness for purpose, their quality and language check (10)	
	<b>TOTAL</b>	<b>100</b>

Tenders must score minimum 60% for each criterion and sub-criterion, and minimum 70% in total. Tenders that do not reach the minimum quality levels will be rejected and will not be ranked.

### 3.3.2.3. Ranking of tenders

The contract(s) will be awarded to the most economically advantageous tender(s), i.e. the tender(s) offering the best price-quality ratio determined in accordance with the formula below.

A weight of 40/60 is given to price and quality

score for tender X	=	cheapest price*	*	100	*	0.4	+	total quality score (out of 100) for all award criteria of tender X	*	0.6
		price of tender X								

Price of tender X" is the "Reference price" in the Financial tender (see section 4. Annexes).

The tender(s) ranked first, second or third after applying the formula will be awarded the framework contract(s).

### **Remarks:**

Tenderers' attention is drawn to the fact that ECDC will be in a position to make a proper assessment of the tenders on the basis of the above qualitative criteria only if they contain full particulars relating to all aspects of this specification. Lack of detail and vague and perfunctory information will be penalised.

As the tenders will be evaluated on the basis of the quality of the services proposed, they should fully explore all the points included in this specification so as to obtain the best possible mark.

Simply repeating the guidelines given in the specification of this invitation to tender without going into detail or expanding on them will result in a very poor mark.

Furthermore, if any essential points of this specification are not expressly covered by the tender, ECDC may decide to give a zero mark for the relevant quality award criteria.

## 4. ANNEXES

Annex I — Draft contract

Annex II — Financial tender form

Annex III — [Declaration on honour](#)

Annex IV — [Authorised signatory form](#)

Annex V — [Tender submission checklist](#)

Annex VI — [Simplified Financial Statements](#)

Annex VII — [Legal entity form](#)

[Financial identification form](#)

[Curriculum vitae template](#)

**NB: Please click on the links above to access Annexes III to VIII**