

Invitation to Tender (ITT)

Part 3

Terms and Conditions of Framework

ITT Part 3 – Terms and Conditions of Framework

The terms of the framework are detailed in the letter contract provided below. Bidders will be able to provide their own general terms and conditions for student enrolment and call off with individual providers will be based on those terms.

The overarching conditions will reflect compliance with the specification.

CONTRACT FOR PROVISION OF MSc IN DATA ANALYTICS FOR GOVERNMENT

This document defines the FRAMEWORK AGREEMENT between you (The CONTRACTOR) and the Office for National Statistics (The AUTHORITY) for the provision of the above services.

Terms and Conditions

The Contract will consist of:

- i. This letter, containing specific conditions 1 to 5 as below.
- ii. The AUTHORITY's Standard Terms and Conditions of Contract for Services a copy of which is available on request.

Where there is any conflict between i. & ii., the order of precedence will be: i. & ii.

Specific Conditions

1. Contract Period

The period of this FRAMEWORK will be for a Academic Years, 2017/2018 and 2018/2019, with the option to extend for two further academic years, to August 2021

2. Specification of Requirement

2.1 CONTRACTOR's Responsibilities

The CONTRACTOR will be responsible for delivery of a programme of academic modules which allow students to progress to award of **Master of Science (MSc) in Data Analytics for Government**

The programme will be delivered through both compulsory and optional modules

1. There should be four compulsory modules
2. There should be eight optional modules.
3. There should be a range of learning options, including full time and part time participation.
4. There should be a range of learning pathways, day, evening, block release, weekend courses.
5. The Contractor will provide details of student enrolment levels and information on individual student progress.
6. The Contractor will participate in an Annual Review event, where course content will be reviewed to ensure it remains fit for purpose for Government.
7. The Contractor will allow any enrolled students to complete the MSc Programme, even if the framework has expired.

2.2 CONTRACTOR's Personnel

Contracted services will be performed by suitably qualified staff. Any change in personnel should be notified to the AUTHORITY's Contract Manager.

3. Pricing, T&S, Invoicing, Payment and Taxation

3.1 Pricing

The Services described will be provided at the rates submitted in the tender for either the full MSc or individual modules for the period of the Contract and any VAT which may be payable. The costs of modules will be reviewed annually.

3.2 Travel and Subsistence

The AUTHORITY will not reimburse any travel costs associated with delivery of the programme or attendance at the Annual Review event.

3.3 Invoicing and Payment

3.3.1 The CONTRACTOR will submit a detailed invoice to the AUTHORITY's Nominated Officer **within one month** of the end of each half-yearly (semester) period. Each invoice will cover:

- a. the half-yearly (semester) price specified in Schedule 3, Pricing, Section 1(c);
- b. any additional services provided under Schedule 2, Section 7.3, which are incurred during the half-yearly (semester) period.

3.3.2 Invoices should contain the Contract reference number PU12/0049 and a Purchase Order number provided by the AUTHORITY.

3.3.3 Payments will be made within 30 days of receipt and agreement of each valid invoice, subject to the Services and deliverables associated with the invoice having been completed to the satisfaction of the AUTHORITY's Nominated Officer.

3.3.4 Any claims for expenses must be detailed separately on invoices and backed up by relevant receipts.

3.3.5 For Services provided by the AUTHORITY under Schedule 2, Sections 7.1 and 7.2, the AUTHORITY will issue a separate invoice for each unit provided under Schedule 2, Section 7.1 and for each day or continuous block of days provided under Schedule 2, Section 7.2. The CONTRACTOR shall make payment within 30 days of receipt and agreement of each valid invoice.

3.3.6 Courses attended and fees incurred by members of the AUTHORITY or other GSS Departments (as priced in Schedule 3, Section 1(a) & 1(b)) will be invoiced separately, on the basis of a relevant purchase order issued in advance of the course. Invoices should be sent directly to the address

specified on the order and payment will be the responsibility of the relevant business area or Department. VAT will not apply.

3.4 Taxation

The Contractor will be responsible for a taxation resulting from performance of the Services

4. Limitation of Liability

The AUTHORITY's entire limitation of liability under this Contract shall not exceed £50,000 exclusive of expenses and any VAT. Limitation of liability may only be varied with the prior written agreement of the AUTHORITY's Contract Manager.

5. Governance

5.1 The CONTRACTOR shall be governed through a series of governance structures at three levels:

- (a) Strategic/Service
- (b) Commercial

The CONTRACTOR shall be included at all levels and shall participate in all structures.

5.2 Each Party shall ensure that its Key Personnel shall make all reasonable efforts to attend scheduled review meetings. If any Key Personnel is not able to attend review meeting, that person shall use all reasonable endeavours to ensure that:

- (a) a delegate attends the relevant review meeting in his/her place who (wherever possible) is properly briefed and prepared; and
- (b) that he/she is debriefed by such delegate after the review meeting. A chairperson shall be appointed by the Authority for each Board. The chairperson shall be responsible for:
 - (c) Scheduling review meetings;
 - (d) Setting the agenda for review meetings and circulating to all attendees in advance of such meeting;
 - (e) Chairing the review meetings;
 - (f) Monitoring the progress of any follow up tasks and activities agreed to be carried out following review meetings;
 - (g) ensuring that minutes for review meetings are recorded and disseminated electronically to the appropriate persons and to all review meeting participants within seven (7) Working Days after the review meeting; and

- (h) Facilitating the process or procedure by which any decision agreed at any review meeting is given effect in the appropriate manner.

5.3 Service/ Strategic Review

5.3.1 The role of the Strategic Review is but not limited to-

- (a) Discuss the emergence of new and evolving relevant course material which could improve the MSc.
- (b) Review and agree new or potential improvements to the provision of the MSc
- (c) Review and agree changes in business processes and ways of working that would enable the Services to be provided at lower costs and/or at greater benefits to the AUTHORITY; and/or

5.4 Structure of the Strategic Review-

| | |
|--------------------|---|
| AUTHORITY Members | Chair person- Programme Manager Other Attendees- Contract manager Service Manager |
| CONTRACTOR Members | To be identified by the Contractor |
| First Meeting | End of First Semester |
| Frequency of Board | End of Every Semester |
| Location of Board | Alternative |

5.5 Commercial Review

5.5.1 The role of the Commercial Review is but not limited to -

- (a) Review, discuss and agree the Exit Plan as set out in Schedule 3.
- (b) Review, discuss and agree the BCDR plan as set out in Schedule 14.
- (c) Review and agree any gain VFM opportunities

5.6 Structure of the Commercial Board -

| | |
|---------------------|--|
| AUTHORITY Members | Chair person- Contract Manager Other Attendees- N/A |
| CONTRACTOR Members | To be identified by the Contractor |
| First Board Meeting | End of June Semester |
| Frequency of Board | Annually |
| Location of Board | Alternative |

6. Termination

6.1 The AUTHORITY may terminate this FRAMEWORK with immediate effect in the event of a contract breach.

6.2 The AUTHORITY may terminate this contract without cause by providing 20 calendar days written notice

7. Confidential Information and Right to Publish

7.1 Without prejudice to the application of the Official Secrets Acts 1911 to 1989 to any Confidential Information, the CONTRACTOR acknowledges that any Confidential Information obtained from or relating to the Crown, its employees, representatives or agents is the property of the Crown.

7.2 In the event that the CONTRACTOR fails to comply with Clause F4, the AUTHORITY reserves the right to terminate the Contract with immediate effect by notice in writing.

7.3 Except to the extent set out in this Clause or where disclosure is expressly permitted elsewhere in this Contract, each Party shall:

- (a) treat all Confidential Information belonging to the other Party as confidential and safeguard it accordingly;
- (b) not disclose any Confidential Information belonging to the other Party to any third party without the prior written consent of the other Party except to such extent as may be necessary for the performance of this Contract;
- (c) immediately notify the other Party if it suspects or becomes aware of any unauthorised access, copying, use or disclosure in any form of any of the other Party's Confidential Information.

7.4 The CONTRACTOR shall (and shall procure that the Sub-Contractors shall):

- (a) implement security practices against any unauthorised copying, use, disclosure (whether oral, in writing or in any other form), access and damage or destruction of AUTHORITY Confidential Information including the implementation of and compliance with those security requirements relating to the AUTHORITY Confidential Information as set out in the Security Policy or as otherwise notified by the AUTHORITY from time to time;
- (b) ensure that all copies of Confidential Information which contain protectively marked information shall be clearly marked in accordance with the security classification set out in the Contract or as notified by the AUTHORITY from time to time.

7.5 With respect to all Confidential Information belonging to one Party or obtained from that Party in connection with the Contract, the other Party shall:

- (a) only request the minimum Confidential Information needed for the purposes of the Contract;
- (b) ensure the Confidential Information is given only to such of its Staff as is strictly necessary for the performance of the Services and only to the extent necessary for the performance of the Services;
- (c) ensure the Confidential Information is treated as confidential and not disclosed (without prior written approval) or used by its staff other than for the purposes of the Contract;
- (d) ensure that, upon completion of the Services, the information is either returned to the originating Party or disposed of, in a manner specified by that Party.

- 7.6 The CONTRACTOR shall not use, and shall ensure that its Staff shall not use, any Confidential Information for the solicitation of business from the AUTHORITY or another part of the Crown by the CONTRACTOR or by such Staff or by any third party.
- 7.7 Where it is considered necessary in the opinion of the AUTHORITY, the CONTRACTOR shall sign, and ensure that its Staff shall sign, a confidentiality undertaking or data access contract before commencing work in connection with this Contract.
- 7.8 The provisions of this Clause F4 shall not apply to any information which:
- (a) is or becomes public knowledge at the time of disclosure (other than by Default of this Clause F4);
 - (b) is in the possession of the Party making the disclosure without obligation of confidentiality prior to its disclosure by the information owner;
 - (c) is received from a third party who lawfully acquired it and who is under no obligation restricting its disclosure;
 - (d) is independently developed without access to the Confidential Information;
 - (e) must be disclosed in accordance with any statutory, legal or parliamentary obligation placed upon the Party making the disclosure, including any requirements for disclosure under the FOIA, or EIR 2004 pursuant to Clause F5 (Freedom of Information).
- 7.9 Nothing in this Clause shall prevent the AUTHORITY from disclosing any Confidential Information (including the Management Information obtained under H9):
- (a) for the purpose of the examination and certification of the AUTHORITY's account or for any examination under the National Audit Act 1983;
 - (b) on a confidential basis to any Crown Body or any Central Government Body for any proper purpose of the AUTHORITY or of the relevant Central Government Body on the basis that the information may only be further disclosed to Central Government Bodies;
 - (c) to the British Parliament and any committees of the British Parliament or if required by any British Parliamentary reporting requirement;
 - (d) to the extent that the AUTHORITY (acting reasonably) deems disclosure necessary or appropriate in the course of carrying out its public functions;
 - (e) on a confidential basis to a professional adviser, consultant, supplier or other person engaged by any of the entities described in Clause F4.9(b) for any purpose relating to or connected with this Contract;
 - (f) on a confidential basis for the purpose of the exercise of its rights under this Contract; or
 - (g) on a confidential basis to a proposed successor body as defined in Clause H1.13 (Transfer and Sub-Contracting) in connection with any assignment, novation transfer or disposal of any of its rights, obligations or liabilities under this Contract, or successor in title to the AUTHORITY.
- and for the purposes of the foregoing, references to disclosure on a confidential basis shall mean disclosure subject to a confidentiality agreement or arrangement containing terms no less stringent than those placed on the AUTHORITY under this Clause F4.
- 7.10 Nothing in this Clause F4 shall prevent either Party from using any techniques, ideas and know-how gained during the performance of the Contract in the course of its normal business, to the extent that this does not relate to a disclosure of Confidential Information or an

infringement of any Intellectual Property Right.

8. Contract Managers

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| <p>For the AUTHORITY</p> <p>Jessica Watson Commercial Services Room D.201 Office for National Statistics Government Buildings Cardiff Road Newport NP10 8XG</p> <p>Telephone: 01633 45xxxx E-mail: jessica.watson@ons.gov.uk</p> | <p>For the CONTRACTOR</p> <p>Telephone:</p> <p>E-mail:</p> |
|---|---|

Signed in acceptance on behalf of the CONTRACTING AUTHORITY:

Signed _____

Name _____

Date _____

Signed in acceptance on behalf of the CONTRACTOR:

Signed _____

Name _____

Date _____

Appendix 3A: Services/Goods Information

SPECIFICATION MSc in Data Analytics for Government

1. Purpose

- 1.1 This document sets out the Specification for a new MSc in Data Analytics for Government.
- 1.2 The Procurement approach to be used is set out in Section 3; the requirements for the MSc in Section 4; and the proposed module contents set out in Section 5.

2. Overarching aim

- 2.1 One of the key aims for the new MSc course is to reduce the travel time to and from University by government staff. The MSc programme should be offered in different locations and could be delivered in different formats (e.g. five full days per week per module or across the standard academic semester), making it more accessible to all UK government analytical staff.

3. Procurement Model

- 3.1 It has been agreed to adopt a new approach to the procurement process for this Masters programme. Using the designed Specification (sections 2 and 3), Universities (UK wide) will be invited by the Office for National Statistics (ONS) to become a 'preferred supplier' of the Masters programme. A 'Framework' will be held by ONS Procurement that contains the list of preferred suppliers.
- 3.2 Following a two month period for expressions of interest, a number of Universities will be selected to be held on the Framework.
- 3.3 Universities will be required to deliver all of the four Compulsory modules and at least 50% of the Optional modules, to be considered as a Preferred Supplier.
- 3.4 The Masters programme and all available module outlines will be available on the University website.

4. Specification Part 1 - MSc Course Requirements

- 4.1 The study length is to be flexible, allowing government staff to vary their study commitments between 3 and 5 years (part-time study), with an option to suspend studies for up to 1 year. A 1 year full-time course will also be considered.
- 4.2 Modules will be delivered throughout the normal University academic semester periods. However, where a University is not located near to any Government Departments (for ease of travel), we will consider modules being delivered in a week 'block'. Alternatively, the University may suggest how it chooses to deliver the modules for ONS consideration.
- 4.3 Distance learning options should be offered for those who are unable to attend classroom based delivery. Innovative delivery options are also requested, in the form of MOOCs (Massive Open Online Courses) wherever possible.

- 4.4 One-off modules should be made available for Continuous Professional Development (CPD).
- 4.5 Modules should be assessed via a mix of course work and/or exam.
- 4.6 Credits will be awarded per assessed module using the Credit Accumulation and Transfer Scheme (CATS) and the European Credit Transfer and Accumulation systems (ECTS). Credits may be accumulated hence those who have undertaken a certain number of one-off modules for Continuing Professional Development (CPD), would be able to enrol onto the full MSc programme at a later date. Credits will also be transferrable to other MSc degree courses, e.g. where a member of staff changes location but would still like to continue their studies.
- 4.7 Each module should carry 10 CATS points for the Masters programme that is being proposed (4 compulsory modules; 8 optional modules).
- 4.8 A variety of learning options/qualifications should be available:
- One-off modules for CPD = 10 CATS/5 ECTS points
 - Graduate Certificate (6 modules) = 60 CATS/30 ECTS points
 - Diploma (12 modules) = 120 CATS/60 ECTS points
 - MSc = Diploma (120 CATS points) + Dissertation (60 CATS points) = 180 CATS/90 ECTS points
- 4.9 The MSc will be compiled of four Compulsory modules and eight Optional modules. Delegates will be able to select any pathway through the Masters, however all routes will lead to a Masters in Data Analytics for Government. The Compulsory set of modules has been designed to provide the foundation for what we expect from innovative Analysts in government.

5. Specification Part 2 – MSc Course Content

- 5.1 The content outlined against each module is a suggestion – ONS would be keen to engage with individual Universities to discuss what they could provide under each module topic.
- 5.2 Where required, ONS will work in collaboration with Universities to agree the content for four specific modules: Statistics in Government (Compulsory), Introduction to Survey Research (Optional), Economics and National Accounts (Optional) and Survey Data Collection (Optional). Please note that ONS Procurement will expect the costs for civil servants attending these modules to reflect the input from ONS. These modules will undergo an annual refresh through collaboration with ONS.
- 5.3 *Compulsory Modules – there are 4 compulsory modules*
- **Statistics in Government:** This module will provide an overview of Official Statistics; consider the political, legal and ethical issues; the Codes of Practice; International requirements and standards; the Classification systems in place; the Quality Management Framework that is in place; Building public trust in Official Statistics; Discussing and understanding issues of sharing (legalities) and data confidentiality.
 - **Data Science Foundations:** This module will introduce the core data science concepts, including: Understanding of the different types of data sources available

across government (admin data, survey data, open data, big data, etc); How to collect data, including innovative data collection methods, e.g. web scraping; Understanding the challenges with unstructured data; How to treat different data types; How to undertake basic data analysis (structured and unstructured data); How to present data through basic data visualisations. This may be delivered through R or Python, as required.

- **Survey Fundamentals:** This module introduces the core statistical survey principles, and includes: Drawing samples from finite populations and making inferences about population characteristics; Understanding different estimation strategies, with consideration of survey errors; Probability sampling methods versus non-probability sampling methods; Variance estimation, standard errors, and confidence intervals. This will include probability theory and statistical inference.
- **Statistical Programming:** This will be a practical module, which builds on the theory already learned through the compulsory modules. It will consider programming with structured and unstructured data. Programming languages to be used here are SAS, R, Python, Java and Java Script.

5.4 *Optional Modules – 8 modules to be selected*

- **Introduction to Survey Research:** This module will build on elements from the compulsory modules and will provide further information regarding survey sampling; survey design; data collection modes; the reduction of survey error; Coding and Classifications; and Harmonisation.
- **Regression Modelling:** This module will introduce the basic regression model - residual analysis, model building and selection, and the handling of categorical variables. Also, Logistic regression (binary response regression) will be introduced, assessing the model fit and model building and selection. Finally, Multiple regression and Multivariate regression modelling will be introduced. Application of the methods in R or Python is recommended.
- **Data visualisation:** This module will build on the basic data visualisations introduced in the compulsory modules. It will cover information design, interaction design and user engagement; state of the art tools to build useful visualisations for different types of data sets and application scenarios; mapping.
- **Evaluation and Monitoring:** This module will focus on alternative experimental and quasi-experimental designs for evaluation and analysing programmes. It will discuss the general statistical methods that can be used in the analysis of data devised from such designs, in particular the estimation of programme effects, including regression adjustments and other analysis methods, propensity score matching and econometric methods of analysis.

- **Economics and National Accounts:** This module will cover the need for and use of economic statistics with particular reference to the role of National Accounts; concepts, definitions and classifications and the European System of Accounts (ESA); measuring economic growth through three approaches to measuring GDP.
- **Survey Data Collection:** This module will introduce the design of methods and tools for data collection. It will focus on question and questionnaire design principles; multimode data collection; interviews and self-administered data collection strategies; designing data collection methods for business and social surveys; qualitative and quantitative methods for question testing; and the role of questionnaire in the overall quality framework.
- **Further Survey Estimation Methods:** This module will focus on the Design-based, model assisted and model-based approaches to inference; general approaches to weighted estimation; post-stratification, ratio estimation, regression estimation; general approaches to variance estimation; and compensating for non-response.
- **Index Numbers:** This module will introduce the basic concepts and attributes, implicit and direct index number calculation; bilateral indices, fixed base and chained indices; economic approaches to index numbers; modelling quality change; measuring productivity including parametric and non-parametric methods.
- **Demographic Methods:** This module will cover the main principles of demographic measurement, rates and measures; life tables; more advanced measures of fertility, nuptiality and mortality; intro to stable population theory; population growth; and projections.
- **Statistical Disclosure Control:** This module will cover the concepts of confidentiality and disclosure; the motivation for disclosure control and the social, ethical, professional and legal contexts. It will discuss the general approaches to disclosure control; assessing disclosure risk and methods of disclosure for tabular and microdata. The impact of disclosure on the utility of the data will also be discussed.
- **Advanced Statistical Modelling:** This module will look at more advanced statistical modelling and may cover Generalised Linear Models; or the analysis of complex survey data; or multilevel model approaches. Three modules delivered separately will also be considered.
- **Time Series analysis:** This module should cover the basic concepts of time series; local models and moving average methods; the problem of end effects; statistical models for forecasting (ARIMA models); and the application of methods

should be taught via an ARIMA software package (latest version), such as the X12 ARIMA package.

- **Small Area Estimation:** This module will consider the motivations for small area estimates; the data sources and auxiliary info; and the different models for use (e.g. nested error models, area-level regression models, etc).
- **Spatial Analysis:** This module will provide an extension to the Regression module. It will focus on network models; shortest path analysis; spatial auto-correlation; space-time models; and geographically weighted regression.
- **Bayesian (probabilistic) methods:** This module will introduce the basic principles of Bayesian inference; an intro to Monte Carlo simulation methods and MCMC; Bayesian hierarchical models; Bayesian spatial models for small area data (links to small area estimation); and WinBUGS/GeoBUGS software to fit Bayesian models for small areas.
- **An Intro to Machine Learning:** This module will provide an overview of Machine Learning, NLP. It will also introduce Imaging and multi-media data processing (Pictures and videos).
- **Advanced Machine Learning:** This module will build on the Intro to Machine Learning module. It will focus on Advanced Programming Skills and Neural Computing as an extension of machine learning, NLP & multi-media. It will consider supervised and unsupervised machine learning algorithms (random forests, neural networks, clustering, Log regression, and support vector machines). It will consider more advanced Imaging and multi-media data processing.
- **Intro to distributed systems:** This module will provide an overview of processing data at large scale and parallel processing. It will introduce Hadoop and Spark and the use of parallel processing paradigms. It will also extend to Data Analytics (distributed ETL and machine learning e.g. more advanced Hadoop & Spark) including:
 - Data querying using RDMS/NoSQL databases
 - data processing pipeline
 - database design using RDMS/NoSQL databases
 - cloud computing
- **Data Mining:** This module will provide an introduction to the key concepts in data mining, information extraction and indexing, pattern recognition techniques and various analytical approaches (e.g. regression modelling, etc). It will also discuss what to apply and when with which data, etc.

- **Applied Data Mining:** This will build on the Data Mining module, building on the concepts of data mining, information extraction and indexing. Techniques for feature extraction, clustering, outlier detection, topic modelling and prediction of complex unstructured data sets will be discussed. It will develop the concepts of pattern recognition and machine learning. It will discuss the use of classifications, regression, clustering and probabilistic modelling and will consider the issues arising from the application of algorithms for analysing data. It will include techniques that can be applied to real world problems.

- **Advanced Programming for Data Analytics:** This module will consider distributed computing, parallel computing and application development (building web-based interfaces, etc). It will build on Hadoop and Spark computing languages already introduced in the Intro to Distributed Systems module.