

APPENDIX A

1. Introduction

1.1 Provision of legislation services

The availability of freely accessible, up-to-date legislation underpins the rule of law in the UK. It is at the heart of the business of government, vital to our democratic society and drives economic activity. The National Archives is responsible for providing the **legislation.gov.uk website** which:

- makes legislation available on the web for the public to access and use;
- provides legislation as open data for data users to include in their own products and services.

The **legislation.gov.uk platform**, of which the website is a key part, enables The National Archives to meet a range of statutory and service responsibilities. The various duties on Her Majesty's Stationery Office, the Queen's Printer of Acts of Parliament, the Queen's Printer for Scotland (OQPS) and the Government Printer for Northern Ireland for printing and publishing new legislation are fulfilled through the legislation services provided to The National Archives.

The National Archives gives strategic leadership to the services, operates the governance framework, and provides legislative, policy and editorial expertise. It also provides technical direction in relation to the architectural approach and standards to be adopted by the supplier.

The legislation services to be provided by the supplier involve **operating, developing and maintaining** the **legislation.gov.uk platform** consisting of:

- the **legislation.gov.uk website** (<http://www.legislation.gov.uk/>) which provides public access to legislation, both as originally enacted, and in a revised form, as well as open data through an API;
- **legislation.gov.uk Editorial** (<https://editorial.legislation.gov.uk/>) used to edit and update legislation by our in-house team, and experts from across government, academia and the commercial sector;
- **legislation.gov.uk Publishing** (<https://publishing.legislation.gov.uk/>) used by people working for other government departments to validate and register statutory instruments and associated documents, and to manage the publication of all Primary and Secondary legislation from all UK Parliaments, Governments and Assemblies;

- **legislation.gov.uk Research** (<http://research.legislation.gov.uk>) for academics, policy makers and researchers, which provides data and a range of easy-to-use tools that enable research across the entire statute book.

The platform also includes scaled down replicas of the live environment that are used as testing, development and staging environments respectively.

The legislation services to be provided by the supplier also involve:

- **cloud hosting management services** (the provision of the cloud based IT infrastructure for the platform is subject to a separate contract; the services described here relate to the management of that hosting infrastructure);
- **legislation data services** that underpin the delivery of open data, according to open standards;
- **support services** - both technical support and some end-user support;
- **printing services**, providing the official source of printed legislation and associated documents, including the tables in the annual volume of Public General Acts and Measures and annual editions of Statutory Instruments, the Chronological Table of the Statutes, the Chronological Tables of Local Acts, and the Chronological Tables of Private Acts.

Suppliers should note that we envisage developing the new front end for the legislation.gov.uk website separately from the services provided under this procurement. However, the supplier may be required to undertake integration work to the platform for a new website front end as part of the services. The supplier will also be expected to develop, support and maintain the existing website and API in order to meet end-user needs, as well as the needs of data users who access both documents and data.

Technology Approach

The technology choices and the technical architecture of the legislation.gov.uk platform have been driven by various considerations: the constraints and difficulties of the content, the need for flexibility so the platform can continually evolve to better meet users' needs and a changing legislative landscape, the need for portability and a strong commitment to open standards.

Legislation documents are mixed content that lend themselves to handling using technologies from the XML stack. The Crown Legislation Markup Language (CLML) has been developed to provide a comprehensive encoding for UK legislation in XML. More

recently transformations have been developed from CLML to LegalDocML (Akoma Ntoso) and HTML5.

Metadata is encoded either using XML (e.g. the audit trail in legislation.gov.uk Publishing) or RDF (e.g. data about amendments, and tasks in the Editorial system).

The architecture of the legislation.gov.uk platform is modular and RESTful. The platform uses a native XML database (currently Marklogic) and native RDF stores (currently GraphDB and Virtuoso), with an application layer based open source Orbeon and Tomcat. There are sophisticated pipelines of application logic processed by Orbeon. Much of the application logic is framed using code based on open standards (XQuery, SPARQL and XSLT). This enables the platform to deliver advanced capabilities such as serving different portions of the content, at different levels (whole Act, Part, Chapter, Section, Subsection), at different points in time, for different jurisdictional extents, in different open formats (XHTML, CLML XML, Akoma Ntoso XML, HTML5, PDF on the fly).

There is an expectation that the supplier will 'code in the open' as far as possible. The code used to transform and display the base CLML XML data to create webpages is made publicly available for reuse from <https://github.com/legislation/legislation>. In addition the publishing and editorial systems both have job management components for queuing and processing the documents. These components are written in .NET (C#) and use MySQL relational databases.

The entire legislation.gov.uk platform has recently been migrated to the cloud using Amazon Web Services primarily as Infrastructure as a Service.

2. Stage 1 responses

Stage 1 responses should demonstrate your relevant experience, skills and capabilities for delivering the Legislation Contract, along with your initial high level ideas for addressing TNA's requirements. At a minimum, you should address the following categories.

Category 1: legislation.gov.uk Platform and Services

The Supplier will be required to operate, develop and maintain the legislation.gov.uk platform.

legislation.gov.uk

The legislation.gov.uk website is the public facing part of the platform. It provides the official source for newly enacted and revised legislation in the UK. The website provides an important public service. Millions of people depend on the free access to legislation provided

by legislation.gov.uk to find the legislation they need to do their jobs or defend their rights. Most of these people are not lawyers and therefore lack access to commercial subscription services.

There are more than 150,000 documents available through the website, with a further 2,000 – 4,000 new items of legislation added each year, along with a similar number of supporting materials such as Explanatory Memoranda and Impact Assessments. The website receives between 2-3 million visitors per month and serves around 20 million page views per month. The supplier will be required to monitor use of the website closely, and ensure optimal performance. Additionally there is a requirement to process web logs and make the data available access and query, for example by using Elasticsearch and Kibana.

The National Archives has a strong commitment to making legislation available as open data. The underlying data managed by the platform is available through the website API for reuse under the terms of the Open Government Licence v3.0. Reuse of the data by commercial, academic, government and public data users is actively encouraged and supported.

The legislation.gov.uk platform also includes a Linked Data RDF database (Virtuoso) that collates metadata from across the platform and makes this available for data re-users via the website through a Linked Data API and SPARQL endpoint.

legislation.gov.uk Editorial

New legislation can amend existing legislation. Legislation can also come into force at different times (commencement) as well as in different territorial jurisdictions (extent). The legislation.gov.uk Editorial service allows a team of legal editors to track legislative amendments and carry them through by editing existing legislation documents to record amendment, commencement and extent metadata, and create new revised versions of the texts which are published to the main website. This supports a user need to be able to easily access a version of a legislation document at any point in its history, and to be aware of the ways in which legislation documents affect each other.

A largely browser-based editorial tool enables the in-house team and experts from across government, academia and the commercial sector to research amendments, commencement and extent, and update legislation. The introduction of this tool has transformed how the team at The National Archives updates legislation and the pace of updating work. Given the potential volume of legislation changes likely to be required under the new contract term – for example to address the requirements arising from the UK's

departure from the European Union – a robust and effective means of updating legislation, and keeping it up-to-date, is an essential tool for government.

The Legislation Editorial service has around 50 users. Workflow and amendment data is stored in an RDF triplestore (Graph DB) which drives the Editorial System website. This system also manages the movement of XML data from main website database to the ‘unpublished’ database and back once editing is complete.

Legislation XML editing is carried out in a specially customised version of the XMetaL editor. This system also incorporates machine assisted identification of amendments using customised natural language processing tools (GATE) to process XML legislation documents, add mark-up and extract relevant data.

legislation.gov.uk Publishing

The legislation.gov.uk Publishing system manages various workflows and processes for the publication of new legislation as documents and data. It has 1,500 users, mainly from other government departments, The National Archives and the supplier. The Legislation Publishing service is a business-critical system for government. The ability to make new legislation, including emergency legislation, is dependent on this service.

The service allows government users to submit newly drafted legislation and accompanying documents for publication. It manages the processes of verifying that the documents are valid and conform to necessary standards. The system takes documents drafted using a variety of different tools (a Word based SI Template, Framemaker for UK Bills, Word template for Scottish Bills, and the Propylon legislative workbench), transforms the content to CLML data and prepares the documents for publication in print and online. It also ensures all required publishing information is recorded, controls the publishing workflow, and maintains the publishing audit trail tracking documents as they pass from government submitters, to The National Archives’ registration team and finally to the Supplier for publication.

The technology stack used for the Publishing system, like the website, uses a native XML database but has the addition of a Drupal based application layer. There are also validation and job queuing systems using .NET. Some legislation metadata is also stored in an RDF triplestore (Virtuoso). The Publishing system has APIs which can integrate with a supplier’s print production and billing systems.

The National Archives, along with partners in the House of Lords, the House of Commons, the Office of the Parliamentary Counsel, the Scottish Parliament, the Scottish Government’s

Parliamentary Council Office, is developing new methods for drafting legislation. The publishing system will need to be able to interact with any new tools and services built as a result of that work.

legislation.gov.uk Research

This specialist service for academics, policy makers and researchers provides a range of easy-to-use tools that enable data science type research across the statute book.

The Research website was developed using Drupal. The service provides access to bulk downloads of legislation data hosted on Amazon S3, an n-grams dataset stored using Amazon DynamoDB, and a domain specific query language which parses and translates queries into XQuery to run against a mirror of the live XML database that supports the website.

Services and Tools for Publishing New Legislation

In addition to the functionality provided through the Legislation Publishing System there are other standalone services required to facilitate new legislation publishing.

a. SI Template

Legislation is drafted by lawyers within government departments, including those in devolved administrations. Some drafting is carried out using tools supplied and maintained by drafters within their own IT services, including most Primary Legislation. However, the majority of Secondary Legislation documents (potentially between 2-4000 documents per year) are drafted using the SI Template.

The SI Template is a complex, customised, Microsoft Word template developed and maintained by the current supplier and owned by The National Archives. There is a requirement to maintain and further develop this tool to ensure that it continues to meet the needs of SI drafters. There is also a requirement to provide training and support for government staff using the SI Template. The current supplier provides a helpdesk service to government users needing to publish their legislation.

b. Typesetting Service

Some new documents submitted for publication cannot be typeset using the standard drafting software and will require typesetting before they can be published. There is a requirement to offer a typesetting service for these documents. There are two scenarios in which additional typesetting is required. The first, most common, scenario is the requirement to support the dual-column mixed language versions of Welsh Legislation - for example http://www.legislation.gov.uk/wsi/2017/489/pdfs/wsi_20170489_mi.pdf. The second scenario

is much rarer, and involves the publication of SI's with non-standard formatting – for example: http://www.legislation.gov.uk/ukxi/2016/362/pdfs/ukxi_20160362_en.pdf.

c. Publishing Workflow Management

Supplier interaction will be required by certain processes within the Legislation Publishing System to ensure all outputs are correctly processed and transformed for use in other systems. The Supplier will be responsible for the management of data processing and publishing workflows to ensure legislation is published quickly and accurately, and provides and maintains accurate bibliographic and transactional publishing data in order to ensure a clear audit trail for all documents.

Legislation Data Services

Legislation data content and associated metadata is held within Legislation Systems in XML, RDF and PDF formats. It is essential that that publically available legislation data faithfully represents that submitted by legislation drafters and must conform to the data standards set by The National Archives. There is a requirement for the Supplier to make corrections to any identified legislation data that does not meet these criteria.

Category 2: Cloud hosting management services

The legislation.gov.uk platform is hosted in the cloud, currently using AWS, predominantly using an Infrastructure as a Service (IaaS) approach. Deployment is managed through the combination of Jenkins and AWS CodeDeploy. We are also using AWS S3 storage, DynamoDB, and Cloud Front. Our services comply with government security policy and protocols, and we run regular security assessments and penetration tests.

The Supplier will be expected to manage the platform infrastructure within the IaaS account(s) provided to them by The National Archives. Potential suppliers should note that the provision of cloud hosting is out of scope, and will be procured separately. While we are currently using AWS, we have taken care to ensure that the services are portable. The supplier may need to adapt the management solution to fit with the chosen cloud hosting provider at the time of award.

Category 3: Service Development and Innovation

Our aim is for legislation.gov.uk to be a world leading legislation website that meets users' needs, supported by a platform that embraces the best applicable technologies.

To understand how best to provide legislation services, The National Archives has worked with a specialist usability consultancy to research who is using legislation and why. Working

with our current contractor, we regularly survey users of legislation services and periodically conduct in-depth interviews with a small selection of the respondents.

We have undertaken in-depth user research, developing and maintaining ‘personas’ (representing types of user behaviour). User needs, elicited from feedback and surveys, as well as regular usability testing, have informed all of our services. Results from our latest phase of user testing and updated personas can be found at Appendix C.

Over the term of the contract the platform will require further development to improve the services and to incorporate new requirements as they arise. Additional discretionary changes and system enhancements may also be required. Future development is likely to include enhancements to support the changing landscape of UK legislation as a result of the UK exiting the EU, and to extend our dual language capabilities in relation to Welsh legislation.

We expect the contractor to be aware of new and emerging technologies and to use these as appropriate. There is a requirement to make use of Open Standards in software development wherever possible.

Suppliers should note that all of the services need to be developed in accordance with the Technology Code of Practice (<https://www.gov.uk/government/publications/technology-code-of-practice/technology-code-of-practice>), Service Standard (<https://www.gov.uk/service-manual/service-standard>) and the practices described in the Service Manual (<https://www.gov.uk/service-manual>).

Category 4: New Business Development

We are also seeking a contractor that can demonstrate an innovative and solutions-focused approach to the development of new business and services. The supplier must have a proven ability to develop and evolve services to deliver commercial return on a concessionary basis, and the appetite to actively seek new revenue-generating opportunities arising from the marriage of high quality, official legislation data and the trusted legislation.gov.uk brand.

Category 5: Hardcopy (Print) Legislation Publication

There are strict guidelines for print specifications. There is a requirement to **print publish all new legislation**. Each new item of legislation is published as an independent document.

See: <https://www.tsoshop.co.uk/parliament/>. Here are a couple of examples:

- European Union (Notification of Withdrawal) Act 2017: Chapter 9
ISBN 9780105400707

www.tsoshop.co.uk/parliament/bookstore.asp?FO=1194956&Action=Book&ProductID=9780105400707&From=Subject

- The Regulation and Inspection of Social Care (Wales) Act 2016 (Commencement No. 3, Savings and Transitional Provisions) Order 2017

ISBN 9780348200829

<https://www.tsoshop.co.uk/bookstore.asp?FO=1159966&Action=Book&ProductID=9780348200829&From=SearchResults>

In addition to individual documents there is a requirement to **print publish annual volumes** incorporating all legislation of each type category published within each year. These are also available from <https://www.tsoshop.co.uk/parliament/>. See for example:

- The statutory rules of Northern Ireland 2016: Part 1 [Nos. 1 - 130]

ISBN 9780337999765

<https://www.tsoshop.co.uk/bookstore.asp?FO=1159966&Action=Book&ProductID=9780337999765&From=SearchResults>

A **Chronological Table of the Statutes** is also produced each year. See for example:

- Chronological table of the statutes [1235-2015]

ISBN: 9780118405515

<https://www.tsoshop.co.uk/parliament/bookstore.asp?FO=1194956&Action=Book&ProductID=9780118405515&From=Subject>

Printing requires some **processing of data held in the Legislation Editorial System** to create the required information for print output.

There is also a requirement to **create bibliographic information and publish daily lists**. It is the supplier's responsibility to organise the **marketing, sale and distribution of legislation**, including the management of subscriptions and any relevant discounting.

[ends]