Maintaining and developing the legislation.gov.uk platform

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 both enacted and revised legislation available on the web for the public to access and use, and provides legislation as open data for data users to include in their own products and services.

The legislation.gov.uk platform enables The National Archives to meet a range of statutory and service responsibilities. The Platform consists 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- the legislation.gov.uk website (http://www.legislation.gov.uk/) which provides public access to legislation, both as originally enacted, and in a revised form, as well as open data through an API;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;
- legislation.gov.uk Publishing (https://publishing.legislation.gov.uk/) used by people working for government departments, our supplier, and our in-house publishing team 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.

The Platform also includes scaled down replicas of the live environment that are used as testing, development and staging environments respectively. We also require hosting management services (the platform itself is cloud-based using Amazon Web Services primarily as Infrastructure as a Service. The AWS account is owned by The National Archives).

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 (to address changing user needs and legislative practices), 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), versions representing different points in time, for different jurisdictional extents, and 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. 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.

Officially publishing legislation online

The National Archives, in its capacity as the Queen's Printer of Acts of Parliament, the Queen's Printer for Scotland and the Government Printer for Northern Ireland, has statutory requirements to publish legislation. These requirements are delivered through the legislation platform (comprising the legislation.gov.uk website, publishing system and editorial system).

The publishing services we provide are business-critical for government. The ability to make new legislation, including emergency legislation outside of normal business hours, is dependent on them. The publishing process is largely automated. The legislation.gov.uk Publishing System is used to capture, transform, and publish

legislation and accompanying documents. It has over 3,500 users, of which the majority are drafters of secondary legislation across the UK's government departments. The publishing system ensures that 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 publishing contractor for publication. The publishing system also hosts documentation, guidance and templates for users who draft or process secondary legislation or accompanying documents.

Online publishing of legislation involves using the legislation.gov.uk Publishing System, with some manual intervention, to do the following:

- provide validation support to departments, pre-submission, correcting minor issues (largely formatting errors) and advising on major issues. This is currently provided through a help desk.

- After submission, check and quality assure all XML and edit it as required to ensure it is valid against the schemas and will publish correctly online and in print. Legislation documents are provided in a variety of formats, which require different types of checking to ensure that valid Crown Legislation Markup Language (XML) is produced, and that the documents will publish accurately online and in print. Most of this checking is done automatically, but workflows are different for primary and secondary legislation, and some manual checks, and XML editing, are required. The publisher is ultimately responsible for ensuring that valid CLML is produced.

- Provide additional services to support drafters – for example training on the Word-based SI template, typesetting and proofing. All Welsh SIs, for example, come in English and Welsh versions, and require typesetting to provide dual column English and Welsh print pdfs.

- Provide a corrections service, for example publishing correction slips and corrective reprints and liaising with print and order fulfilment teams to ensure these get sent out to customers.

- Delivering the statutory requirement to produce a daily list of newly published legislation.

- Publishing and storing print ready pdfs at 1200 DPI and web optimised pdfs at 300 DPI, liaising with the printer and providing print management services to

ensure that strict publishing deadlines for online and print are met and monitored and to preparing Bound Volumes and Chronological Tables for printing.

- Liaising with sales and order fulfilment teams to ensure subscriptions, standing orders and general sales are fulfilled and copies are provided to departments and for legal deposit.
- Compiling bibliographic information to support sales and marketing.
- Meeting accessibility requirements, for example providing copies of legislation in braille if requested.
- Working closely with The National Archives' publishing team and the team who maintain and develop the legislation.gov.uk Publishing System to raise issues and bugs and suggest improvements.

Officially publishing legislation in print

There are statutory requirements for print that are delivered under contract. Deadlines are strict and immovable, and printing has to be delivered to the highest quality and to specific specifications. Initial print copies are provided for departments and legal deposit libraries standing order and subscription customers, but there is a requirement for a print on demand service too. The printing of legislation, bound volumes and chronological tables is currently managed as a sub contract by our publishing contractor.

Providing order fulfilment and customer services

We need suppliers who can deliver customer services, sales and order fulfilment services – providing a 'shop front' online, managing standing orders and subscriptions, print on demand, invoicing and despatch of legislation and bound volumes, liaising with print and online publishers.

Providing standalone digital and data expertise for legislation services

We are anticipating that as well as procuring for business-as-usual development of our legislation platform, we will procure bespoke development, for example of legislation data and research tools, the development of a linked data service or web statistics service, legislation data enrichment or a new user interface for legislation.gov.uk. These will require a wide range of skills and expertise – so if you have capability in any of the following, we'd like to hear from you: working with XML

(ideally CLML or Akoma Ntoso) and native XML databases (Marklogic), HTML-5, JSON, RDF and SPARQL, DynamoDB, Puelia, GraphDB, Drupal, PHP, Java, Javascript, CSS, Orbeon, X-Query, XSLT, RESTful APIs, GATE, Kibana, data visualisation technologies.

Maintaining, developing and operating the Lawmaker service

Lawmaker is a new digital service provided by The National Archives to users in the UK Parliament, UK Government, Scottish Parliament, Scottish Government and associated organisations. The service provides those users with a suite of tools to draft and manage legislation, including both primary (Bills and Acts) and secondary (Statutory Instruments). Lawmaker is built on a number of open source and proprietary components; at its heart it is an XML-based document authoring and management tool with the ability to produce print-ready PDFs and handle the parliamentary amendment process. It is hosted in the cloud (an AWS account owned by The National Archives) and user access is via a browser (API access is also available for downstream systems).

To ensure the continued delivery of Lawmaker, the Lawmaker service team in The National Archives will require services from suppliers to manage, maintain and continually develop it.

Managing and maintaining the service includes:
- Monitoring availability and performance of service and taking remedial action as necessary
- Ensuring the service and the data it holds is secure and maintaining protective monitoring against threats and misuse
- Managing the hosting of the service in the cloud and adapting it as necessary to meet demands and ensure best value
- Providing technical support and remedying defects
- Providing user support
- Release management and deployment including continuous integration
- Patching components to ensure they remain in support and secure
- Reporting on service usage, performance etc.

Continually developing the service includes:

- Understanding user needs

- Improving accessibility

- Developing and testing new features and improvements to existing features

- Extending the service to include additional document types, user groups and jurisdictions

- Refining and extending the Akoma Ntoso XML data model

Key capabilities and expertise that may be required include: XML modelling and development (including XSLT, XSL-FO, XPath), XML authoring and editing tools, web application development, software security design and development, database design and development, RESTful API development, software testing, user interface design, release management and agile development.

Operating and developing our web archiving services

The UK Government Web Archive (UKGWA) captures, preserves and makes accessible UK central government information published on the web. It comprises thousands of websites as well as a large social media archive. We're looking for suppliers who have demonstrable skills and experience in running web archiving and social media services to provide capture and replay services. This includes using a variety of crawlers/tools for creating standards-compliant WARC files and social media data; performing quality assurance on archives; managing the resulting data securely and providing secure and robust access and hosting services for the retrieval of archived content via a 'wayback-style' replay software (e.g. pywb) or, in the case of social media, a custom access system.

Our other web archive, the EU Exit Web Archive (EEWA) is the comprehensive and official UK reference point for EU law as it stood at the end of the implementation period. While this service is no longer growing, we need to continue to develop it to meet the needs of our users.

Furthermore, our web archiving services require robust and scalable access management tools that provide fine-grained control over what is publicly-available versus only available for our internal teams.

We're also looking for suppliers with demonstrable skills and experience in providing a large-scale (hundreds of millions of documents) search service. This involves customised data extraction from our web archives and social media archives, processing and enrichment that leads into a secure, robust and user-friendly search experience.

Capture and replay, and search, solutions must be hosted in The National Archives' AWS cloud account.