Digital Connectivity Infrastructure Accelerator (DCIA) Pilot

Draft Technical Specification

September 2021

Executive Summary

Local Authorities and Wireless Telecommunications Infrastructure Providers are key stakeholders in the supply chain for the rollout of national digital infrastructure and advanced wireless connectivity, including 5G networks. Local Authorities directly manage a significant portfolio of publicly owned property, in other words assets, which are often uniquely well suited to installation of wireless telecommunications equipment. Simplifying the interactions between Local Authorities and the telecommunications industry promises to significantly accelerate expansion of existing wireless networks and connectivity, and by extension support local economic growth and digital inclusion in communities across the UK.

Within the Digital Connectivity Infrastructure Accelerator (DCIA) project, DCMS and its cross-government partners aim to pilot Digital Platforms for mapping and brokerage of publicly owned assets for use in the rollout of wireless communication networks. The main aim of these platforms is to make transactions between public sector asset owners and telecommunications companies as frictionless as possible, so to lower the costs of site acquisition and to accelerate the rollout of digital connectivity.

Since the publication of the Future Telecoms Infrastructure Review in 2018, a significant progress has been made in accelerating the rollout of advanced wireless networks thanks to Barrier Busting and 5G Testbeds and Trials programmes. However, one persistent issue repeatedly highlighted during these programmes by both telecommunications industry and Local Authorities is the difficulty in finding locations and agreeing the rights-of-use to deploy equipment on public property. Current processes are all too often fragmented, manual in nature, and lacking supporting data and digital tools.

By working closely with representatives of local and regional governments in piloting Digital Platforms, the DCIA project will look to deliver significant savings of Local Authorities' resources by eliminating the need for complex case-by-case interventions currently generated by industry's requests to deploy telecommunication equipment. Consequently, this should result in increased utilisation of publicly owned assets that is in harmony with community interests and local place-making ambitions.

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1. Background

The DCMS Digital Connectivity Infrastructure Accelerator (DCIA) project aims to accelerate deployment of advanced wireless connectivity, including 5G, through identification and national adoption of best-practice processes and tools to access publicly owned assets (land, buildings, and street furniture) for installation of telecommunications equipment.

Digital Asset Management Platform workstream within the DCIA project seeks to support national adoption of online tools which digitalise and to as greatest degree possible automate the process of finding and securing rights-of-use of suitable locations for deployment of advanced wireless equipment. The aim is to make the transactions between public sector asset owners and telecommunications infrastructure providers as frictionless as possible.

The key factor in the national adoption of platform solutions is the acceptance of their functionality and benefits by all their end-users, infrastructure providers and asset owners alike.

This technical specification has been jointly developed with mobile telecommunication infrastructure providers (including all four major Mobile Network Operators), UK regions and their constituent local authorities, government partners (such as Geospatial Commission), and potential solution providers.

The purpose of this draft document is to set out the core functionality requirements a Digital Asset Management Platform would need to provide. It is a base reference for the DCMS funding competition to support region-led pilots which are planned to take place in 2022.

The final version of the Technical Specification will be made publicly available in the autumn of 2021 subject to any additional stakeholder input.

2. Definitions

- **Platform** – the software application that these criteria refer to
- **Asset** – a location that can potentially be leased for the purpose of installing telecommunications or other hardware
- **Asset Owners** – Local Authorities and third parties listing assets on the platform
- **Network Operators** – Mobile Network Operators and other organisations potentially looking to lease listed assets
- **Organisations** – Both Asset Owner and Network Operator organisations
- **User** – a person working on behalf of an Organisation
- **Role** – a category describing the type of work being undertaken by a User on behalf of an Organisation. A User could potentially be associated with more than 1 Role.
- **Supplier** – the company providing the platform
- **Platform Owner** – the Organisation responsible for procuring the Platform, most likely a Local Authority
- **Applicant** – the consortium applying to run a Pilot Project, typically consisting of a Local Authority Platform Owner, a Supplier and other named Organisations that will be critical to the deployment of the Platform.
- **Administrator** – a Role assigned to a User allowing them to make changes to the Organisation profile within the Platform, including managing Users and Roles
- **Layer** – a set of spatial data that can be displayed or hidden on the map, in the form of a point, line or bounded region
- **Attributes** – the properties of an Asset or Supporting Data element.
- **Supporting Data** – information other than the list of Assets made available through the Platform to assist with the selection of Assets. This will take the form of a Layer containing point data, line data and/or bounded areas elements with associated Attributes

3. Guidance to Applications

3.1 Recommended Core Functional Requirements for a Solution

3.1.1 All Organisations

General Functionality

- As a User, I should be able to access a zoomable map of the UK with the ability to display point data, line data and bounded areas.

- As a User, I should be able to see Assets and Supporting Data as Layers on the map and be able to select them where appropriate to see additional attributes.

- As a User, I should receive notifications from the Platform where relevant, e.g., when I am required to carry out an action following a request being made by another User. The details of how notifications should be implemented should be determined as part of the platform design.

- As an Administrator, I should be able to see an audit history of actions carried out on behalf of my Organisation, including detail of the action, the User that has carried out the action and a timestamp of when the action took place.

Organisation, Role and User Management

- As an Administrator for an Organisation, I should have the ability to grant access to Users on behalf of the Organisation and assign them a Role.

- As an Administrator for an Organisation, I should have the ability to swap 'all active references' to a particular User with a reference to another User if required, e.g., where a User is listed as the contact point for a particular Asset or the enquirer for leasing an Asset.

3.1.2 Platform Owner

General Functionality

- As an Administrator for the Platform Owner, I should have the ability to define custom category names for categorising Supporting Data.

- As an Administrator for the Platform Owner, I should have the ability to define custom Attributes for particular categories of Supporting Data alongside pre-defined Attributes.
- As an Administrator for the Platform Owner, I should have the ability to enforce the population of selected Attributes by Asset Owners.

Organisation, Role and User Management

- As an Administrator for the Platform Owner, I should have the ability to grant or remove access to allow other Organisations to access the platform as either an Asset Owner, Network Operator or both and to set up an initial Administrator for the Organisation.

- As an Administrator for the Platform Owner, I should have the ability to assign a category to Organisations that have been granted access, e.g., Local Authority Asset Owner, Private Asset Owner, MNO, IOT Operator, etc.

3.1.3 Asset Owners

Asset Data Set

- As an Administrator for an Asset Owner, I should have the ability to import data about my Assets into the Platform from CSV, shapefile, KML and KMZ files.

- As an Administrator for an Asset Owner, I should have the ability to define how data fields are mapped to Attributes when I import Assets.

- As an Administrator for an Asset Owner, I should have the ability to edit Asset Attributes and the Asset's location on the map. If this will not be achieved using the Platform UI, the process should be clearly defined. All data changes should be fully auditable.

- As an Administrator for an Asset Owner, I should have the ability to remove Assets from the Platform.

- As an Administrator for an Asset Owner, I should have the ability to assign a User or a Role as the contact point for a particular Asset.

- As an Administrator for an Asset Owner, I should have the ability to upload and delete 'unstructured' files containing supporting information (such as PDFs and image files) to a predefined Asset Attribute, along with a description and a displayed timestamp.

- As an Administrator of an Asset Owner, I should have the ability to define which Asset Attributes should not be exportable by anyone outside of my Organisation.

- As an Administrator of an Asset Owner, I should have the ability to view a list of my Assets sorted by various attributes, including the Last Verification Date Attribute.

Supporting Data Set

- As an Administrator for an Asset Owner, I should have the ability to import Supporting Data into the Platform as a Layer from CSV, shapefile, KML and KMZ files.

- As an Administrator for an Asset Owner, I should have the ability to define how data fields are mapped to Attributes when I import Supporting Data.

- As an Administrator for an Asset Owner, I should have the ability to edit Supporting Data Attributes. If this will not be achieved using the Platform UI, the process should be clearly defined.

- As an Administrator for an Asset Owner, I should have the ability to categorise Supporting Data according to a list of pre-defined categories, with pre-defined Attributes.

3.1.4 Network Operators

General Functionality

- As a Network Operator User, I should have the ability to toggle the visibility of available Supporting Data Layers on and off through the Platform UI.

- As a Network Operator User, I should have the ability to filter which Assets are visible on the Platform's map according to whether Asset Attributes match specified values.

- As a Network Operator User, I should have the ability to select one or more Assets by clicking on them on the Platform's map.

- As a Network Operator User, I should have the ability to select one or more Assets by defining a spatial region, including:
  - Assets within the bounds of a simple polygon
  - Assets within the bounds of a selected radius of a point
  - Assets within the bounds of one or more externally imported polygons
  - Assets within the bounds of the selected radii of one or more points

- As a Network Operator User, I should have the ability to view all of the available core Attributes of a selected Asset.

- As a Network Operator User, I should have the ability to export the Attributes of selected Assets as CSV, shapefile, KML or KMZ, unless they have been specified as not exportable by the Asset Owner.

- As a Network Operator User, I should have the ability to send a request to multiple asset owner contacts to express an interest in using the Assets that have been selected.

- As a Network Operator User, I should have the ability to request that an Asset is 'reserved' while surveys and negotiations are undertaken.

- As a Network Operator User, I should have the ability to inform an Asset Owner when Asset Attributes or displayed geospatial location are incorrect.

3.2 Recommended Core Technical Requirements

- The Platform should be a Web-based platform conforming to Web Content Accessibility Guidelines (WCAG) 2.1 where appropriate.

- The Platform should be fully compliant with OWASP security principles.

- The Platform should be fully compliant with the National Cyber Security Centre's Cloud Security Guidance.

- The Platform should enforce for 2-factor authentication for User access.

3.3 Recommended Core Data Requirements

This is a non-exhaustive list of domain-specific properties and attributes that are recommended to be supported in order to realise the Recommended Core Functional Requirements. It should be noted that while these data fields are considered as a core requirement, actual availability of described asset data is optional subject to an asset owner having access to such data.

Asset Attributes – these should include:

- Asset Owner's Site ID
- NGR

- Height
- Full Address (applicable to land and buildings)
- UPRN
- Site Access Availability (yes/no flag)
- Site Access Details (e.g., special procedures to access the site for maintenance)
- Power Supply Availability Status (RAG format)
- Power Supply Availability Details (i.e., any asset-specific information that the Asset Owner believes is relevant to understanding how easily power could be provided to equipment utilising this asset)
- Backhaul Accessibility Status (RAG format)
- Backhaul Accessibility Details (i.e., any asset-specific information that the Asset Owner believes is relevant to understanding how easily equipment utilising this asset could access fixed telecommunication infrastructure such as fibre)
- Site Availability Status (RAG format. This should represent the likelihood that the Asset can be rented. Multiple Amber or Red categories could be utilised to provide additional context, e.g., “Amber – under offer“, “Amber – preservation area“ “Red - out of service during construction work”, etc.)
- Site Availability Review Date
- Special Implementation Issues Exist
- Special Implementation Issue Details (i.e., any other Asset-specific information that the Asset Owner believes is relevant to know when selecting this asset not covered elsewhere)
- Reference to Asset Owner
- Reference to default Asset Owner contact User
- Reference to Asset Owner contact Users that should be used instead of default for enquiries from particular categories of Network Operator Organisations. (e.g., a particular contact point for large MNOs).
- Indicative Acceptable Pricing
- ‘Unstructured’ supporting information (uploaded files with description and timestamp)
- Timestamp of last record update
- Timestamp of last verification of information

Organisations – these should include:

- Organisation category

Roles – these should include:

- Platform Administrator
- Organisation Administrator
- Asset Owner Contact
- Asset Owner Attribute Updater
- Asset Owner Viewer
- Network Operator Asset Enquirer
- Network Operator Asset Viewer

Supporting Data Categories and Predefined Fields – these should include:

- Data Category: Socio-Economic; Predefined Field: Name

3.4 Other Technical and Functional Considerations

The following requests were raised by stakeholders as part of the design and engagement process but have not been included in the core requirements as either they fall outside of the core scope of the project; introduce additional security or commercial concerns; or broad consensus could not be reached upon them. Proposals that choose to include these features should carefully consider the challenges raised and explain how they will be mitigated.

- **Mobile network coverage data & planned MNO asset rollouts**
  Commercial sensitivities related to this data may result in this data being difficult to obtain or use.

- **Detailed maps of fibre and power availability**
  Although this information could provide more insight than the recommended asset-level RAG status of Power Supply Availability and Network Infrastructure Access, guidance from the Centre for the Protection of National Infrastructure cautions against providing information about the location of critical infrastructure assets at a level of detail that would allow them to be maliciously targeted.

- **Maps of 'no-go' or protection areas**
  For consistency, we recommend capturing this information at an asset level using the Access Status, Site Availability and Special Implementation Issues fields

- **Local Authority planning data & Local Authority requests for additional coverage**
  These features were deemed to be outside of the core scope for the pilot projects

3.5 Recommended Agreements

Other responsibilities that it is recommended for a Platform Owner to agree with a Supplier before applying to run a pilot:

- Who will own the Intellectual Property Rights for the Platform, i.e., will the development partner have sole ownership pf the source code?

- Who is responsible for the management and maintenance of the deployed Platform?

- Who will own the data uploaded into the Platform?
- Who will be responsible for compliance issues, such as GDPR requests, DPIAs, etc.?
- How will users be trained to use the platform and who will be responsible for this?
- What is the upfront cost to deploy the Platform?
- Once the platform is deployed, what is the breakdown (or at least reasonable estimation) of ongoing operating costs, including hosting charges, additional development rates and technical support?
- In the event that the Supplier is not hosting the Platform, has a reasonable estimate been provided of the technical requirements for the Platform Owner or a third party to host the platform?

End of the document