Open Contracting for Infrastructure Data Standards Toolkit

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Open Contracting Partnership

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CONTENTS

The Open Contracting Data Standard (OCDS) is already used to describe millions of procurement processes around the world relating to goods, services and public works. The CoST Infrastructure Data Standard (CoST IDS) has been used to guide what data and information ought to be disclosed at each stage of the project cycle on over 25,000 infrastructure projects.

This site describes how to combine **contract level disclosures using OCDS** with **project-level disclosure based on the CoST IDS**, in order to support scalable disclosure and monitoring of infrastructure project identification, preparation, implementation and delivery.

Trillions of dollars are spent every year on infrastructure and estimates suggest between 10 and 30% of infrastructure investment is lost through inefficiency, mismanagement and corruption. Access to better and more joined up data is essential to drive better quality, more affordable and more accessible infrastructure for government, citizens and business.

This Open Contracting for Infrastructure Data Standards (OC4IDS) Toolkit will show you how to:

- *Publish standardized data* on infrastructure projects and contracts using the CoST IDS and OCDS.

- Extract *infrastructure contracting data from existing procurement portals*.

- Connect contract and project-level information *using OC4IDS*.

- Assess published data *against the CoST IDS*.

- Make use of data when monitoring infrastructure projects.

CONTENTS

1.1 About

The Open Contracting Partnership, CoST - the Infrastructure Transparency Initiative - and Open Data Services Co-operative are working together to document how the Open Contracting Data Standard, and additional standardized data models, can be used to represent, share and analyze all the information necessary under the CoST Infrastructure Data Standard.

You can get involved via the issue tracker, or for more information about this work, contact Bernadine Fernz, Head of Infrastructure at the Open Contracting Partnership and/or Evelyn Hernandez, Head of Members and Affiliate Programmes at CoST.

Read more about Open Contracting and Infrastructure on the Open Contracting Partnership Blog

1.1.1 Background

The Open Contracting Data Standard is already used to describe millions of procurement processes around the world relating to goods, services and public works.

CoST, the Infrastructure Transparency Initiative, has identified 67 key items of information that ought to be **pro-actively and reactively disclosed** for public works projects in order to support stakeholders to monitor these infrastructure projects, and to carry out assurance activities.

These 67 elements cover both **project information** and **contract information** for the planning, preparation, procurement and implementation phases of an infrastructure project and its associated contracting processes.

A lot of the information identified by CoST may be captured through contracting processes:

- Contracts are issued for planning, design and preparation work;
- Contracts are issued for construction of infrastructure;
- Contracts are issued for monitoring construction implementation.

When open contracting principles and practices are put in place, data about these contracting processes, and documents associated with them, ought to be openly available in standard formats.

By linking existing open contracting disclosure (and ensuring key fields and documents are provided) with project-level information, new opportunities for data-driven infrastructure project monitoring are unlocked.

1.1.2 Theory of change and work plan

This project, running from June 2018 through to March 2019, has the following theory of change.
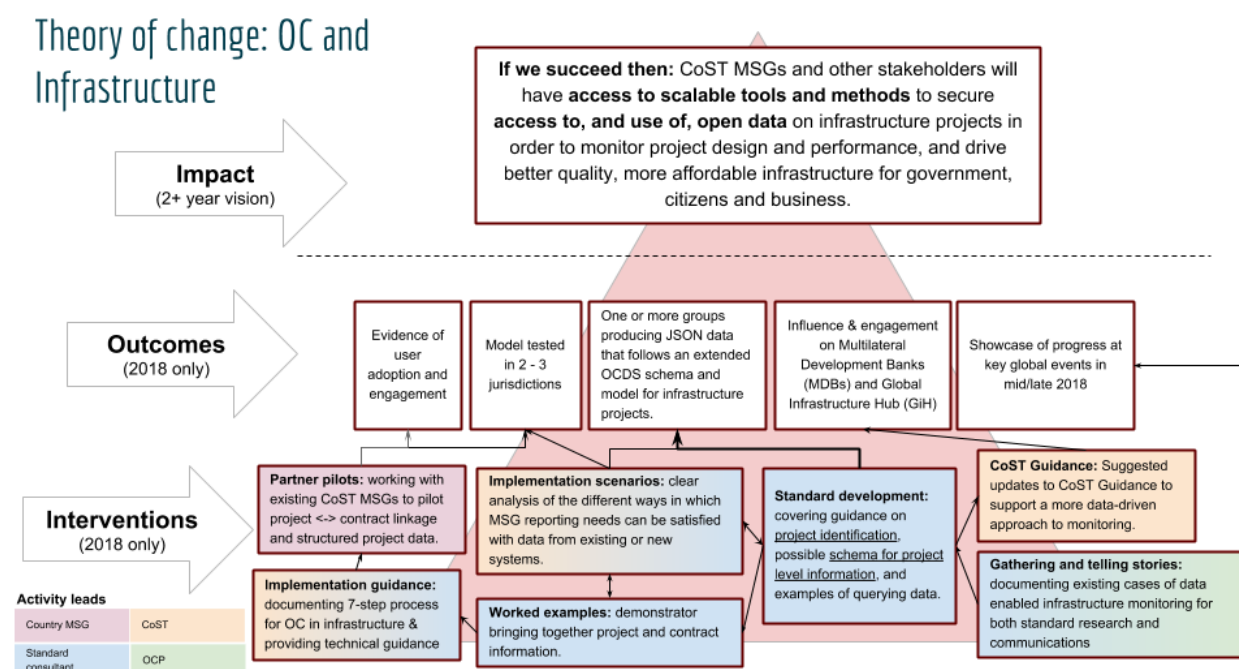
The technical development work plan consists of the following four components:

- **Supply and demand research (June/July 2018)** - exploring the extent to which existing open contracting data can be used to understand major infrastructure projects and fulfill reporting requirements of the CoST Infrastructure Data Standard.

- **Project identifier research (June/July 2018)** - identifying the opportunities to bring together data on projects through use of unique project identifiers.

- **Schema and guidance development (July - September 2018)** - providing a clearly documented approach to the use of the core Open Contracting Data Standard (and extensions if appropriate) to provide the proactive disclosures needed by CoST, and outlining implementation models for this.

- **Implementation resources (October 2018 - February 2019)** - creating guidance for implementers seeking to deploy the open contracting data standard for infrastructure projects

1.2 Getting started

The regular disclosure of structured data can greatly enhance the transparency and accountability of publicly funded infrastructure projects.

Publishing standardized data makes using data easier, for example to compare data across projects. It also supports the development of reusable tools and methodologies.

1.2.1 What is a project?

In the context of OC4IDS, the term 'project' refers to an infrastructure project, defined as the development of a set of infrastructure assets in a specified location, generally the responsibility of a single procuring entity and budget authority: for example, a highway overpass or a university campus.

An infrastructure project can stand alone (e.g. a new hospital), or can form part of a wider investment project or programme of work (e.g. a new rail station, as part of an extension to a railway line).

Within an infrastructure project, a procuring entity can initiate multiple contracting processes for the project design, construction or supervision.
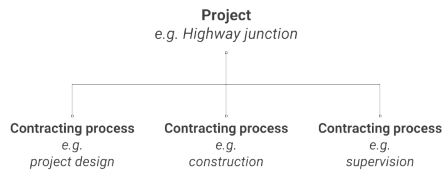
Tip: The term "project" is used in many contexts to mean different things. In OC4IDS, the term "project" only refers to an infrastructure project and not to an investment project, investment program, or budget code.

1.2.2 What is the scope of OC4IDS?

OC4IDS describes how to structure and format the disclosures described by the CoST IDS.

The CoST IDS is a best practice framework for disclosure on infrastructure projects. It describes what information to disclose to support monitoring of infrastructure projects.

The CoST IDS and OC4IDS cover project-level data and summary contracting process data.

What is project-level data?

Project-level data relates to the project as a whole and covers the following stages:

- **Identification** - the decision to develop a project within the budget and programme of a project owner.

- **Preparation** - the feasibility study, environmental and social impact assessment, general scoping of the project, establishing the packaging and procurement strategy, preliminary statutory requirements on environmental and land impacts, and the resulting budget authorization.

- **Implementation** - covers the procurement and implementation of the planning, design and works according to the procurement strategy.

- **Completion** - covers the handover of the assets and close-out activities with details of the final scope, cost, and delivery time.

What is summary contracting process data?

Summary contracting process data relates to the contracts used to deliver the project and covers the following stages:

- **Procurement** - the procuring entity and process; contract type and status; number of bidders; cost estimate and contract price; suppliers; scope of work and start date and duration of the contract.

- **Implementation** - variations to contract price, duration and scope, and reasons for these changes.

CoST recommends disclosing data on contracts for the design, construction and supervision of a project and any other significant contract outsourced by the procuring entity.

1.2.3 How is OC4IDS structured?
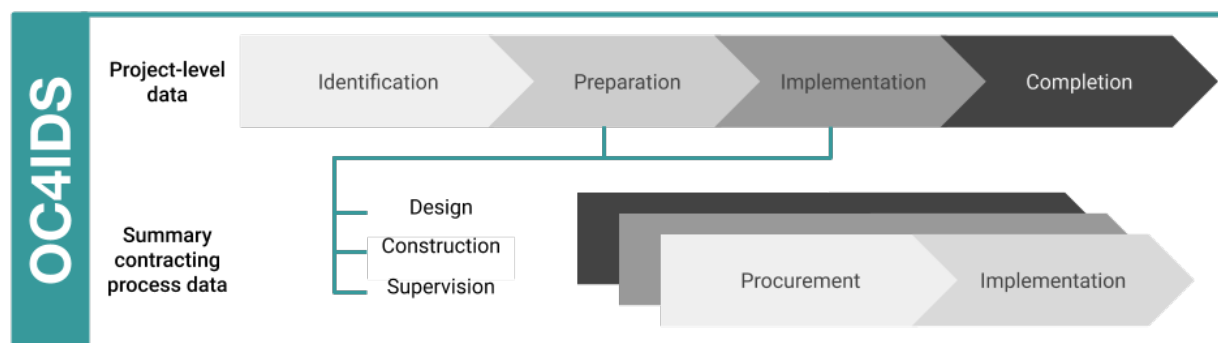
The top-level of the OC4IDS data model is used for project-level data, covering the identification, preparation and completion stages of a project.

Each project in OC4IDS can have many related contracting processes.

The `contractingProcesses` array can be used to provide a summary of the procurement and implementation of each contracting process related to the project.

The `contractingProcesses/modifications` section can be used to record information on changes to each contracting process.

1.2.4 How does detailed contracting data fit in?

Alongside project-level data and documents, monitoring an infrastructure project can largely involve monitoring the contracts used to deliver it, particularly any primary construction contracts.

It is possible to use contracting data to identify infrastructure projects for monitoring. It can also be used to monitor projects for changes to costs, timescales and scope. Each change you identify can be recorded in the summary contracting process data section of OC4IDS, along with an explanation.

Where detailed contracting data is published using the Open Contracting Data Standard, the `contractingProcesses/ releases` array in OC4IDS can be used to link to OCDS releases, recording each update to a contracting process.

OCDS is used to disclose detailed data on contracting processes for goods, works and services. It covers all stages of a contracting process: planning, initiation, award, contract and implementation.
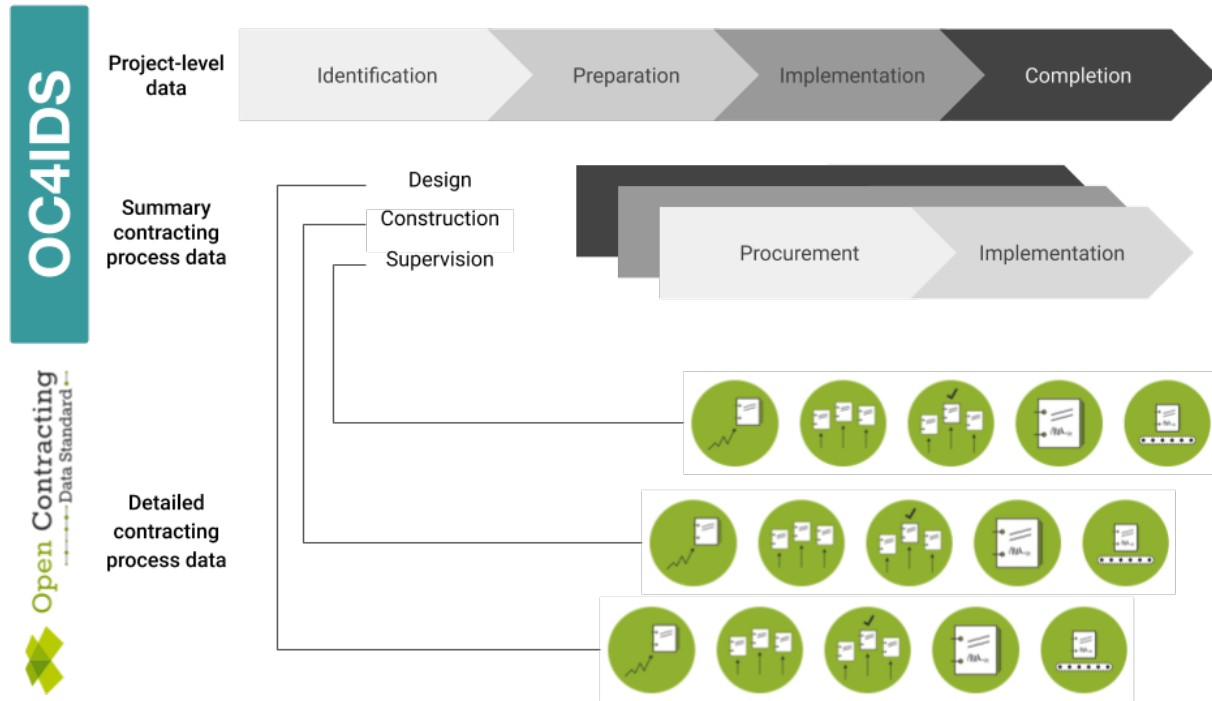
OCDS data can be used to identify and monitor infrastructure projects. It can also be used to produce OC4IDS data. Converting OCDS data to OC4IDS data can reduce the amount of manual data entry necessary for infrastructure project monitoring.

Tool

OC4IDS Kit's convert-from-ocds command can be used to generate an OC4IDS file from OCDS data about the contracting processes related to an infrastructure project.

1.2.5 How do PPPs fit in?

Infrastructure projects can be procured in different ways, including through Public-Private Partnerships.

Where data on PPP projects is published using OCDS for PPPs, the `contractingProcesses/releases` array in OC4IDS can be used to link to OCDS for PPPs releases.
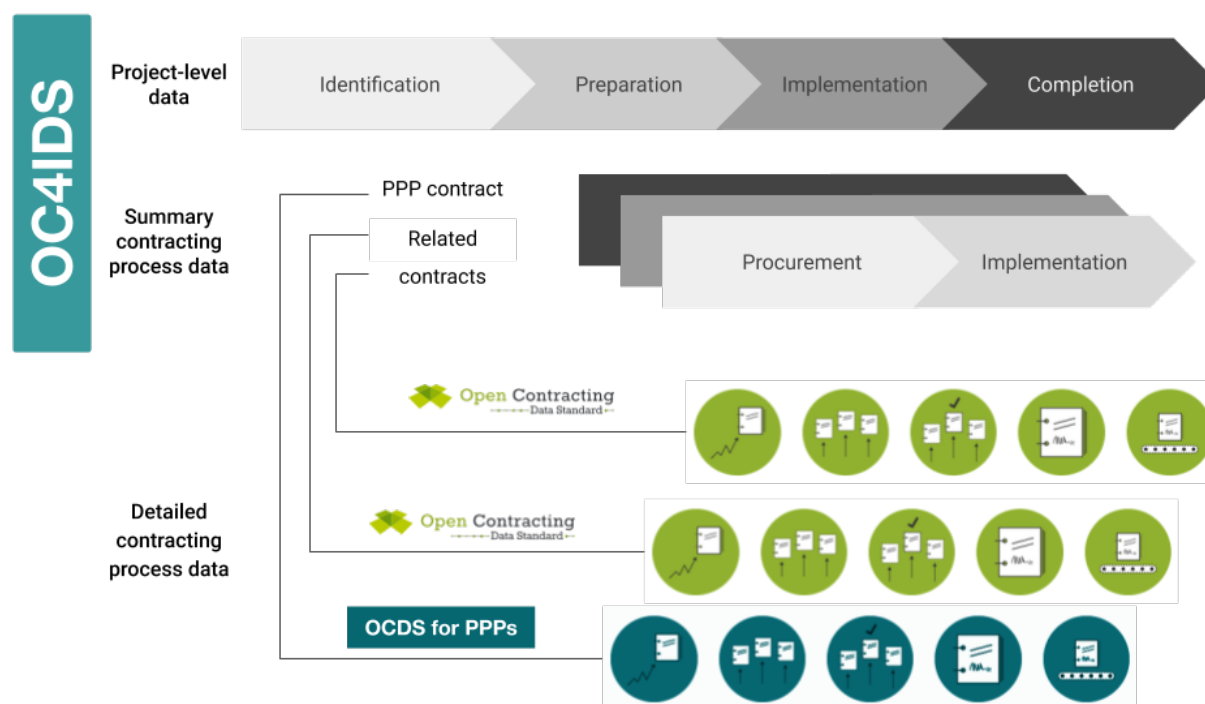
1.2.6 Why use OC4IDS?

Publishing your data using OC4IDS means that it can be compared with data from other publishers and supports the development of reusable tools for analysis of infrastructure project data. OC4IDS data can also be linked with other critical documents such as project pipelines and public sector budgets to allow for the tracking of the project from its identification to completion across different government institutions.

OC4IDS is designed to help you collect well-structured data, comparable across contexts, and with all the fields needed to make sure the data is clear and unambiguous. It has been designed to integrate with existing open contracting data sources, but also to work in cases where structured open contracting data is not available.

1.2.7 When can I use OC4IDS?

OC4IDS can be used in the following scenarios:

Publishing structured data from an infrastructure transparency portal

OC4IDS describes a standardized format for publishing structured data on infrastructure projects.

Read the guidance on publishing data from an infrastructure transparency portal.

Designing a new infrastructure transparency portal

OC4IDS describes the best practice information you ought to collect and disclose to support infrastructure project monitoring.

Using OCDS data for whole life-cycle infrastructure project monitoring

OC4IDS can be used to:

- Join up OCDS data published about contracts related to an infrastructure project

- Capture and record data about the project a contract relates to

- Record a list of changes to a contracting process and reasons for those changes

Read the guidance on using data from procurement systems for infrastructure project monitoring.

Collecting data on infrastructure projects using a spreadsheet

The OC4IDS schema can be used to generate a spreadsheet template for collecting data.

Designing other data collection tools

OC4IDS provides definitions for fields and codelists which can be used to collect consistent data.

Publishing data that complies with the CoST IDS

OC4IDS describes how to structure and format the disclosures described by the CoST IDS.

Review the CoST IDS mapping to learn how to publish each element of the CoST IDS using OC4IDS.

Are you ready to start using OC4IDS?

Complete the OC4IDS scoping template and share it with the OC4IDS helpdesk.

1.3 Schema reference

The Open Contracting for Infrastructure Data Standard (OC4IDS) provides a common approach for the disclosure of structured data on infrastructure projects and their related contracting processes.

OC4IDS comprises a *schema* and *codelists*. The schema sets out the fields, structure, data types and validation rules for OC4IDS data. Some schema fields refer to codelists, to limit and standardize the possible values of the fields, in order to promote data interoperability.

The schema can be explored using the *schema browser* and can be downloaded here. The schema is expressed using JSON Schema, draft 4.

OC4IDS data must be published as part of a *project package*, which serves as a container for data on multiple projects and adds important metadata about the data publication.

The OC4IDS schema reuses many fields and structures from the Open Contracting Data Standard.

1.3.1 Schema browser

The OC4IDS schema can be explored using the browser below.

Click on schema elements to expand the tree, or use the '+' icon to expand all elements. Use { } to view the underlying schema for any section. Required fields are indicated in **bold**.

1.3.2 Schema reference

This page presents the fields in the OC4IDS schema in tables with additional information in paragraphs. Required fields are indicated in the **Required** column.

For fields that reference a sub-schema, a link is provided to a table with details of the sub-schema. To see how the fields and sub-schemas fit together, consult the *schema browser*.

Examples are provided for each table, showing how to represent the fields in the table in JSON format. For more information on the examples, see *examples*.

Project

The top-level object in OC4IDS is a project.

A project is defined as:

> The development of a set of infrastructure assets in a specified location, generally the responsibility of a single procuring entity and budget authority: for example, a highway overpass or a university campus.

A project's fields include:

- Metadata, such as the project's `title`, `description` and `status`.
- Budget data, which describes the projected costs or allocated budget for the project.
- Data about the parties (organizations and other participants) involved in the project.
- Links to documents relating to the project, such as needs assessments and project evaluations.
- Data about contracting processes for different aspects of the project, such as design, construction and supervision.
- Completion data, such as the final scope, duration and costs for the project.

Each project has the following fields.

Schema

Title	Description	Type	Format	Required
`id`		string		Required
Identifier or Reference	An identifier for this infrastructure project. The identifier must be globally unique and must begin with a registered project identifier prefix. For more information, see the project identifier guidance.			
`updated`		string	date-time	
Last updated	The date on which project-level information was last updated. This should not be changed when constituent contracting processes information changes, unless this project-level data has been updated as a result, or to provide explanations or justifications for those changes.			
`title`		string		
Project title	The title of the project.			
`description`		string		
Project description	A description of this project. This should usually be no longer than a single paragraph.			
`status`		string		
Status	The current phase or status of this project, from the projectStatus codelist.			
`period`		object		

Table 1 – continued from previous page

Title	Description	Type	Format	Required
Project period	The period over which this project is planned to run. This may be updated during the preparation phase as information becomes available to more accurately specify anticipated start and end dates, but should not be updated during the implementation or completion phases. The planned completion date of the project should be provided in `period.endDate`, which can be compared with the actual completion date in `completion.endDate` See *Period*			
`sector`		array[string]		
Project sector	One or more values from the projectSector codelist representing the sector(s) this project relates to. More detailed sector breakdown information can be provided using the pattern [sector].[subsector]. Where subsector codes are used the parent code should also be included, e.g. `['transport', 'transport.air']`			
`purpose`		string		
Project purpose	The socioeconomic purpose of this project.			
`additionalClassifications`		array[Classification]		
Additional classifications	One or more additional project classifications may be provided to describe the social or economic focus of the project. This classification may take place against a locally developed codelist, or a globally established codelist. See *Classification*			
`type`		string		
Project type	Whether the primary focus of this project is the construction of a new asset or the rehabilitation or replacement of an existing asset, from the projectType codelist.			
`relatedProjects`		array[Related project]		
Related projects	References to projects related to the same set of infrastructure assets as this project. For example, a project for the replacement of a bridge might reference the earlier project for its initial construction. See *RelatedProject*			
`assetLifetime`		object		
Asset lifetime	The anticipated lifetime of the asset after this project is completed. This may be provided as either explicit dates or an estimated duration. See *Period*			
`locations`		array[Delivery Location]		
Project locations	Information about the location where a project is taking place. One or more locations may be provided, or the location may be described in a number of different ways, such as a point location for the central location of construction, and a gazetteer entry to describe the region where the project is taking place. See *Location*			
`budget`		object		

Table 1 – continued from previous page

Title	Description	Type	Format	Required
Total project value	Specify the projected costs or allocated budget for the infrastructure project (currency and amount). This cost should include land and property acquisition, environmental mitigation measures, health and safety provisions, client, consultant and contractor costs, as well as applicable taxes. Where this value includes costs incurred directly by the project owner or other agencies, which are not subject to procurement, then this value is likely to be higher than the sum of all the linked contracting processes. To indicate the profile of a budget over time, or the budget coming from different sources, the extended budgetBreakdown section may be used.			
`budget/description`		string		
Description	A short free-text description of the budget that will fund the project. This may be used to provide human-readable information on: the budget category for the project and/or the nature and source of the budget allocation (e.g. conditional, confirmed, or any official authorizations given to the budget allocation).			
`budget/amount`		object		
Amount	The projected costs or allocated budget for the project. See *Value*			
`budget/requestDate`		string	date-time	
Request date	The date on which the project budget was requested.			
`budget/approvalDate`		string	date-time	
Approval date	The date on which the project budget was approved. Where documentary evidence for this exists, it may be included among the project documents with the documentType set to 'budgetApproval'.			
`budget/budgetBreakdown`		array[Detailed budget breakdown]		
Budget breakdown	A detailed breakdown of the budget by period and/or participating funders. See *BudgetBreakdown*			
`forecasts`		array[Metric]		
Forecasts	Forecast metrics for this project, such as planned physical or financial progress over time. See *Metric*			
`parties`		array[Organization]		
Parties	Information on the parties (organizations, economic operators and other participants) who are involved in the project and their roles, e.g. buyer, procuring entity, supplier etc. Organization references elsewhere in the schema are used to refer back to this entries in this list. See *Organization*			
`publicAuthority`		object		
Public authority	The name and identifier of the public authority that is tendering and contracting the project. The full details of the entity should be added to the project-level `parties` array with a `role` of 'publicAuthority'. See *OrganizationReference*			
`documents`		array[Document]		

Table 1 – continued from previous page

Title	Description	Type	Format	Required
Documents	Documentation related to this project. Entries may include a short text summary (plain text, HTML or Markdown), and/or a link to a specific document accessible on the web. At the identification phase, a project scope (documentType: projectScope) is expected. At the preparation phase, environmental impact (documentType: environmentalImpact) and land and settlement impact (documentType: landAndSettlementImpact) documentation is expected. During implementation, procurement documents should be shared at the contracting process level, but key documents may also be provided here. At the completion phase, final audit (documentType: finalAudit) and evaluation (documentType: projectEvaluation) reports and documents are expected. See *Document*			
`contractingProcesses`		array[Contracting process]		
Contracting processes	A single project may have a number of related contracting processes (design, construction, monitoring etc.). Project-level data should contain (a) an index of those contracting process; (b) the latest summary information about them; (c) a change history with explanations for any major modifications to contract duration, price or scope. Where OCDS data is published on each contracting process, a link should be provided to each available release of OCDS data (e.g. to each notice or updated notice), and this OCDS data may be used to automatically populate the summary information. See *ContractingProcess*			
`metrics`		array[Metric]		
Metrics	Actual metrics for this project, such as the actual physical or financial progress over time. See *Metric*			
`completion`		object		
Completion	This information is provided at project completion, and reflects the final timing and values relating to the project. The reason for any variation (not already explained) between the anticipated project scope, period and value should be detailed.			
`completion/endDate`		string	date-time	
End date	The actual completion date for the project (compare with the endDate in project period).			
`completion/endDateDetails`		string		
End date details	Details related to the endDate. This may be a justification for the project's completion date being different than in the original project.			
`completion/finalValue`		object		
Final value	The total cost of this project at completion (compare with project budget). See *Value*			
`completion/finalScope`		string		
Final scope	A short description of the final scope of the project at completion.			
`completion/finalScopeDetails`		string		

Table 1 – continued from previous page

Title	Description	Type	Format	Required
Final scope details	A reason, explanation or justification for any variation between the anticipated scope (compare to the projectScope document) and the final scope at completion. If appropriate, additional details may be included in the documents section, with a title indicating that these documents will describe and differences between the planned and completed scope of work.			
language		[string]		
Language	The default language of the data using either two-letter ISO639-1, or extended BCP47 language tags. The use of lowercase two-letter codes from ISO639-1 is recommended.			

Examples

```
{
    "id": "oc4ids-bu3kcz-m75-junctions-4-to-5-smart-motorway",
    "updated": "2018-12-10T15:53:00Z",
    "title": "M75 Junctions 4 to 5 upgrade smart motorway",
    "description": "Upgrading the 5km stretch of the M75 near Birmingham Airport,␣
→between junction 4 near Patcham and junction 5 at Windlesham, to an all-lane running␣
→smart motorway.",
    "status": "completed",
    "period": {
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        "durationInDays": 1074
    },
    "sector": [
        "transport",
        "transport.road"
    ],
    "additionalClassifications": [
        {
            "scheme": "COFOG",
            "id": "04.5.1",
            "description": "Road transport (CS)"
        }
    ],
    "type": "expansion",
    "purpose": "To help support local economic growth and maintain mobility.",
    "relatedProjects": [
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            "id": "1",
            "scheme": "oc4ids",
            "identifier": "oc4ids-bu3kcz-m75-junctions-4-to-5-construction",
            "relationship": "construction",
            "title": "Original construction of M75 J4-5"
        }
    ],
    "assetLifetime": {
        "startDate": "2018-07-01T00:00:00Z",
        "endDate": "2040-07-01T00:00:00Z",
        "durationInDays": 8027
```

```
        },
    "locations": [
        {
            "id": "001",
            "description": "M75 J4 Patcham Interchange",
            "geometry": {
                "type": "Point",
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                    52.2571843,
                    -0.1163333
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            },
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                "streetAddress": "Patcham Interchange, New Road",
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                "region": "Westshire",
                "postalCode": "WS20 5TV",
                "countryName": "United Kingdom"
            },
            "uri": "https://www.openstreetmap.org/node/202995"
        },
        {
            "id": "002",
            "description": "M75 J5 Windlesham interchange",
            "geometry": {
                "type": "Point",
                "coordinates": [
                    52.1373584,
                    -0.1198955
                ]
            },
            "gazetteer": {
                "scheme": "OSMN",
                "identifiers": [
                    "https://www.openstreetmap.org/node/26571091"
                ]
            },
            "address": {
                "streetAddress": "Windlesham Interchange, Old Road",
                "locality": "Windlesham",
                "region": "Westshire",
                "postalCode": "WS21 6RZ",
                "countryName": "United Kingdom"
            },
            "uri": "https://www.openstreetmap.org/node/1638915385"
        }
```

```
    ],
    "budget": {
        "description": "Budget allocation for Motorways UK, aligned with the 2016-2018␣
→strategic plan.",
        "amount": {
            "amount": 40000000,
            "currency": "GBP"
        },
        "requestDate": "2015-05-30T00:00:00Z",
        "approvalDate": "2015-06-24T00:00:00Z",
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            {
                "id": "2016",
                "description": "2016 budget allocation",
                "amount": {
                    "amount": 10000000,
                    "currency": "GBP"
                },
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                    "endDate": "2016-12-31T00:00:00Z"
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                "sourceParty": {
                    "name": "Motorways UK",
                    "id": "GB-GOR-XX1234"
                }
            },
            {
                "id": "2017",
                "description": "2017 budget allocation",
                "amount": {
                    "amount": 20000000,
                    "currency": "GBP"
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                "endDate": "2018-12-31T00:00:00Z"
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            }
        }
    ]
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            "legalName": "Motorways UK",
            "id": "XX1234",
            "uri": "https://government-organisation.register.gov.uk/records/XX1234"
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        "additionalIdentifiers": [
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                "scheme": "GB-GOV",
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                "id": "ABCDE"
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            "postalCode": "LL55 4NY",
            "countryName": "United Kingdom",
            "streetAddress": "8 Mountain Walk",
            "region": "Westshire",
            "locality": "Patcham"
        },
        "contactPoint": {
            "name": "Motorways Manager",
            "email": "EX12345@motorwaysuk.gov.uk",
            "telephone": "+44 0123 456 7890",
            "faxNumber": "+44 0123 456 7891"
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            "procuringEntity",
            "buyer",
            "publicAuthority",
            "funder"
        ],
        "people": [
            {
                "id": "1",
                "name": "Jane Bloggs",
                "jobTitle": "Chair"
            }
        ]
```

```
        },
        {
            "name": "A1 Expert Smart Moto Design",
            "id": "GB-COH-11111111",
            "identifier": {
                "scheme": "GB-COH",
                "id": "11111111",
                "legalName": "A1 Expert Smart Moto Design Ltd",
                "uri": "https://beta.companieshouse.gov.uk/company/11111111"
            },
            "address": {
                "streetAddress": "Farm Grove, Prince Road",
                "locality": "Patcham",
                "region": "Westshire",
                "postalCode": "WS18 5BW",
                "countryName": "United Kingdom"
            },
            "contactPoint": {
                "name": "Kim Designer",
                "email": "kim.designerd@a1expertsmart.com",
                "telephone": "+44 0123 456 7890",
                "url": "https://www.example.com"
            },
            "roles": [
                "supplier",
                "tenderer"
            ]
        },
        {
            "name": "Motorway Design Services PLC",
            "id": "GB-COH-12345678",
            "identifier": {
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                "id": "12345678",
                "legalName": "Motorway Design Services PLC",
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                "region": "Eastshire",
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                "countryName": "United Kingdom"
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                "tenderer"
            ]
        },
        {
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            "id": "GB-COH-22222222",
            "identifier": {
```

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            },
            "address": {
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                "locality": "London",
                "region": "London",
                "postalCode": "SE1 1EZ",
                "countryName": "United Kingdom"
            },
            "contactPoint": {
                "name": "Supervisor Manager",
                "email": "supervisor.manager@example.com",
                "telephone": "+44 0123 456 7890",
                "faxNumber": "+44 0123 456 7891",
                "url": "https://www.example.com"
            },
            "roles": [
                "supplier",
                "tenderer"
            ]
        },
        {

            "name": "Concrete Motorways Construction",
            "id": "GB-COH-33333333",
            "identifier": {
                "scheme": "GB-COH",
                "id": "33333333",
                "legalName": "Concrete Motorways Construction Ltd",
                "uri": "https://beta.companieshouse.gov.uk/company/33333333"
            },
            "address": {
                "streetAddress": "5 Example Grove",
                "locality": "London",
                "region": "London",
                "postalCode": "SW1A 1AA",
                "countryName": "United Kingdom"
            },
            "contactPoint": {
                "name": "Construction Manager",
                "email": "construction.example@example.com",
                "telephone": "+44 0123 456 7890",
                "faxNumber": "+44 0123 456 7891",
                "url": "https://www.example.com"
            },
            "roles": [
                "supplier",
                "tenderer"
            ]
        },
```

```
        {
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            "id": "GB-GOR-XX9876",
            "identifier": {
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                "legalName": "Motorways Administrator UK",
                "id": "XX9876",
                "uri": "https://government-organisation.register.gov.uk/records/XX9876"
            },
            "address": {
                "postalCode": "BN18 9AB",
                "countryName": "United Kingdom",
                "streetAddress": "High Street, Arundel",
                "region": "West Sussex"
            },
            "contactPoint": {
                "name": "Motorways Administrator",
                "email": "EX6789@motorways-administration-uk.gov.uk",
                "telephone": "+44 0678 456 7890",
                "faxNumber": "+44 0678 456 7891"
            },
            "roles": [
                "administrativeEntity"
            ],
            "people": [
                {
                    "id": "1",
                    "name": "Elstra Lovelace",
                    "jobTitle": "Commercial Contract Officer"
                }
            ]
        }
    ],
    "publicAuthority": {
        "name": "Motorways UK",
        "id": "GB-GOR-XX1234"
    },
    "documents": [
        {
            "id": "plan-1234",
            "documentType": "procurementPlan",
            "title": "M75 Junction 4 to 5 Smart Motorway procurement plan.",
            "description": "Procurement plan for the M75 Junction 4 to 5 Smart Motorway␣
→covering the full life-cycle of the Smart Motorway junction upgrade.",
            "url": "https://example.com/he/M75-junctions-4-to-5-smart-motorway/results/
→M75J4-5+procurement+plan.pdf",
            "datePublished": "2016-05-01T00:00:00Z",
            "dateModified": "2016-05-11T00:00:00Z",
            "format": "application/pdf",
            "language": "en",
            "author": "Fred Consulter"
        },
```

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        {
            "id": "environmental-impact-5678-r4",
            "documentType": "environmentalImpact",
            "title": "Environmental Study Report",
            "description": "An Environmental Study Report into the M75 Junction 4 to 5␣
→Smart Motorway Upgrade",
            "url": "http://example.com/roads/road-projects/
→M75+junctions+4+to+5++smart+motorway/M75+J4-5SM+Environmental+Study+Report.pdf",
            "datePublished": "2016-02-10T00:00:00Z",
            "dateModified": "2016-12-15T00:00:00Z",
            "format": "application/pdf",
            "author": "Jane Environment, Environment Motorway Consultants Ltd."
        },
        {

            "id": "budget-approval-5678",
            "documentType": "budgetApproval",
            "title": "Approval of Budget for M75 J4-5 upgrade",
            "description": "A full budget approval document for the M75 J4-5 upgrade␣
→with budgeting for design, build and supervision.",
            "url": "http://example.com/roads/road-projects/
→M75+unctions+4+to+5+budget+approval.pdf",
            "datePublished": "2015-10-01T00:00:00Z",
            "dateModified": "2018-03-01T00:00:00Z",
            "format": "application/pdf",
            "author": "UK Motorways Budget Agency",
            "pageStart": "55",
            "pageEnd": "60",
            "accessDetails": "Documents can be inspected in the Motoways UK Example␣
→Archive or users can register for free to access."
        },
        {

            "id": "feasibility-study-8976",
            "documentType": "feasibilityStudy",
            "title": "Feasibility Study for Smart Motorway project: benefits and costs",
            "description": "A report commissioned by Motorways UK to carry out initial␣
→investigations and site visits to esablish the suitability of upgrading the existing␣
→motorway junctions M75 J4-5 to Smart Motorways.\n\nThe survey recorded existing␣
→motorway infrastructures and concluded that upgrading to Smart Motorways is feasible. \
→n\nAdditional design issues are noted in the report.",
            "datePublished": "2015-10-10T00:00:00Z",
            "format": "application/pdf",
            "author": "Feasibility Consultants Example Limited",
            "pageStart": "55"
        }
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            "title": "Physical progress",
            "observations": [
                {
                    "id": "1",
```

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                "measure": "50",
                "unit": {
                    "name": "percent",
                    "id": "P1",
                    "scheme": "UNCEFACT"
                },
                "period": {
                    "startDate": "2018-01-07T00:00:00Z",
                    "endDate": "2018-01-07T00:00:00Z"
                },
                "value": {}
            },
            {
                "id": "2",
                "measure": "75",
                "unit": {
                    "name": "percent",
                    "id": "P1",
                    "scheme": "UNCEFACT"
                },
                "period": {
                    "startDate": "2018-04-07T00:00:00Z",
                    "endDate": "2018-04-07T00:00:00Z"
                }
            },
            {
                "id": "3",
                "measure": "100",
                "unit": {
                    "name": "percent",
                    "id": "P1",
                    "scheme": "UNCEFACT"
                },
                "period": {
                    "startDate": "2018-07-01T00:00:00Z",
                    "endDate": "2018-07-01T00:00:00Z"
                }
            }
        ]
    }
],
"metrics": [
    {
        "id": "physicalProgress",
        "title": "Physical progress",
        "observations": [
            {
                "id": "1",
                "measure": "50",
                "unit": {
                    "name": "percent",
                    "id": "P1",
```

```
                    "scheme": "UNCEFACT"
                },
                "period": {
                    "startDate": "2018-01-07T00:00:00Z",
                    "endDate": "2018-01-07T00:00:00Z"
                },
                "value": {}
            },
            {
                "id": "2",
                "measure": "75",
                "unit": {
                    "name": "percent",
                    "id": "P1",
                    "scheme": "UNCEFACT"
                },
                "period": {
                    "startDate": "2018-08-07T00:00:00Z",
                    "endDate": "2018-08-07T00:00:00Z"
                }
            },
            {
                "id": "3",
                "measure": "100",
                "unit": {
                    "name": "percent",
                    "id": "P1",
                    "scheme": "UNCEFACT"
                },
                "period": {
                    "startDate": "2018-12-01T00:00:00Z",
                    "endDate": "2018-12-01T00:00:00Z"
                }
            }
        ]
    }
],
"contractingProcesses": [
    {
        "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b",
        "summary": {
            "ocid": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b",
            "externalReference": "2016-SMP-M75-J4_J5-construction",
            "nature": [
                "construction"
            ],
            "title": "Smart Motorways Programme - Construction - Package 3 - M75 J8 -
↪ 10",
            "description": "Collaborative Delivery Framework (CDF) - Lot 3B -␣
↪Construction  \u00a310 to  \u00a350m",
            "status": "closed",
            "tender": {
```

```
            "procurementMethod": "limited",
            "procurementMethodDetails": "Restricted procedure",
            "costEstimate": {
                "amount": 33000000,
                "currency": "GBP"
            },
            "numberOfTenderers": 1,
            "tenderers": [
                {
                    "name": "Concrete Motorways Construction",
                    "id": "GB-COH-33333333"
                }
            ],
            "procuringEntity": {
                "name": "Motorways UK",
                "id": "GB-GOR-XX1234"
            },
            "administrativeEntity": {
                "name": "Motorways Administrator UK",
                "id": "GB-GOR-XX9876"
            }
        },
        "suppliers": [
            {
                "name": "Concrete Motorways Construction",
                "id": "GB-COH-33333333"
            }
        ],
        "contractValue": {
            "amount": 29000000,
            "currency": "GBP"
        },
        "contractPeriod": {
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            "endDate": "2018-07-01T00:00:00Z"
        },
        "finalValue": {
            "amount": 35250000,
            "currency": "GBP"
        },
        "transactions": [
            {
                "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-00001-1",
                "source": "https://openspending.org/motorways-uk-spending/",
                "date": "2017-08-07T00:00:00Z",
                "value": {
                    "amount": 1950000,
                    "currency": "GBP"
                },
                "payer": {
                    "id": "GB-GOR-XX1234",
                    "name": "Motorways UK"
```

```
                },
                "payee": {
                    "name": "Concrete Motorways Construction",
                    "id": "GB-COH-33333333"
                },
                "uri": "https://openspending.org/motorways-uk-spending/
→transaction/xyz123"
            }
        ],
        "documents": [
            {
                "id": "a1b1c1-construction-excavation-report",
                "documentType": "physicalProgressReport",
                "title": "Report on construction excavation",
                "description": "A report on the construction at Junction 5 where
→excavation damaged a watercourse.",
                "url": "https://example.com/Published/a1b1c1-construction-
→monitoring.html",
                "datePublished": "2018-02-01T00:00:00Z",
                "dateModified": "2018-02-11T00:00:00Z",
                "format": "text/html",
                "language": "en",
                "accessDetails": "Register for document access.",
                "author": "Motorways UK"
            },
            {
                "id": "a1b1c1-construction-completion",
                "documentType": "completionCertificate",
                "title": "Completion certificate for construction at M75 J4-5
→upgrade",
                "description": "Completion certificate for the construction
→upgrading motorway M75 Junctions 4-5.",
                "url": "https://example.com/Published/a1b1c1-construction-
→completion.html",
                "datePublished": "2018-12-10T00:00:00Z",
                "format": "text/html",
                "language": "en",
                "accessDetails": "Register for document access.",
                "author": "Motorways UK"
            }
        ],
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                "id": "m27-4-5-construction-modification-001",
                "date": "2018-04-01T15:15:00Z",
                "description": "Construction extended for 5 months",
                "rationale": "Excavation damaged a watercourse. Construction
→extended for repairs.",
                "type": "duration",
                "releaseID": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-
→cdfpc3b005",
                "oldContractPeriod": {
```

```
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                            "newContractPeriod": {
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                                "endDate": "2018-12-01T00:00:00Z"
                            }
                        },
                        {
                            "id": "m27-4-5-construction-modification-002",
                            "date": "2018-04-01T15:15:00Z",
                            "description": "Construction scope extended to include repairing
→a watercourse",
                            "rationale": "Excavation damaged a watercourse. Construction
→scope extended for repairs.",
                            "type": "scope",
                            "releaseID": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-
→cdfpc3b0015"
                        },
                        {
                            "id": "m27-4-5-construction-modification-003",
                            "date": "2018-04-01T15:15:00Z",
                            "description": "Contract value increased from 29000000 to
→35250000 to include repairing a watercourse",
                            "rationale": "Excavation damaged a watercourse. Construction
→budget extended for repairs.",
                            "type": "value",
                            "releaseID": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-
→cdfpc3b0015",
                            "oldContractValue": {
                                "amount": 29000000,
                                "currency": "GBP"
                            },
                            "newContractValue": {
                                "amount": 35250000,
                                "currency": "GBP"
                            }
                        }
                    ]
                },
                "releases": [
                    {
                        "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0011",
                        "date": "2015-09-16T15:12:32Z",
                        "tag": [
                            "tender"
                        ],
                        "url": "https://example.com/Published/releases/5553-b55.json"
                    },
                    {
                        "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0012",
                        "date": "2015-12-16T15:15:00Z",
```

```
                "tag": [
                    "award"
                ],
                "url": "https://example.com/Published/releases/5553-b56.json"
            },
            {
                "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0013",
                "date": "2015-12-16T15:15:00Z",
                "tag": [
                    "contract"
                ],
                "url": "https://example.com/Published/releases/5553-b57.json"
            },
            {
                "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0014",
                "date": "2015-12-16T15:15:00Z",
                "tag": [
                    "implementation"
                ],
                "url": "https://example.com/Published/releases/5553-b58.json"
            },
            {
                "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0015",
                "date": "2018-04-01T15:15:00Z",
                "tag": [
                    "implementationUpdate"
                ],
                "url": "https://example.com/Published/releases/5553-b59.json"
            },
            {
                "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0016",
                "date": "2018-12-10T09:15:00Z",
                "tag": [
                    "contractTermination"
                ],
                "url": "https://example.com/Published/releases/5553-b60.json"
            }
        ]
    },
    {
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            "ocid": "ocds-a1b1c1-a410a80d-adc8-11e6-9901-0019b9f3037b",
            "externalReference": "2016-SMP-M75-J4_J5-design",
            "nature": [
                "design"
            ],
            "title": "Smart Motorway Design M75 J4-5",
            "description": "Design of Smart Motorway upgrade M75 J4-5",
            "status": "closed",
            "tender": {
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```

```
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                    "currency": "GBP"
                },
                "numberOfTenderers": 2,
                "tenderers": [
                    {
                        "name": "A1 Expert Smart Moto Design",
                        "id": "GB-COH-11111111"
                    },
                    {
                        "name": "Motorway Design Services PLC",
                        "id": "GB-COH-12345678"
                    }
                ],
                "procuringEntity": {
                    "name": "Motorways UK",
                    "id": "GB-GOR-XX1234"
                },
                "administrativeEntity": {
                    "name": "Motorways Administrator UK",
                    "id": "GB-GOR-XX9876"
                }
            },
            "suppliers": [
                {
                    "name": "A1 Expert Smart Moto Design",
                    "id": "GB-COH-11111111"
                }
            ],
            "contractValue": {
                "amount": 1950000,
                "currency": "GBP"
            },
            "contractPeriod": {
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                "endDate": "2017-07-07T00:00:00Z"
            },
            "finalValue": {
                "amount": 1950000,
                "currency": "GBP"
            },
            "documents": [
                {
                    "id": "a1b1c1-tender-doc-001",
                    "documentType": "tenderNotice",
                    "title": "M72 improvements at J4-5: Tender Notice",
                    "description": "A tender notice for the design of improvements
→to M75 J4-5",
                    "url": "https://example.com/Published/a1b1c1-design-001.html",
                    "datePublished": "2015-12-10T16:45:00Z",
```

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                "format": "text/html",
                "author": "Motorways UK"
            }
        ]
    },
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            "date": "2016-04-01T00:00:00Z",
            "tag": [
                "tender"
            ],
            "url": "https://www.example.com/releases/ocds-cdf-pc10008.json"
        },
        {
            "id": "ocds-cdf-pc10009",
            "date": "2016-06-01T15:49:19Z",
            "tag": [
                "award"
            ],
            "url": "https://www.example.com/releases/ocds-cdf-pc10009.json"
        },
        {
            "id": "ocds-cdf-pc10010",
            "date": "2017-08-17T00:00:00Z",
            "tag": [
                "implementation",
                "contractTermination"
            ],
            "url": "https://www.example.com/releases/ocds-cdf-pc10010.json"
        }
    ]
},
{
    "id": "ocds-a1b1c1-370ad85a-097f-4b8c-adf8-09d840c7c48b",
    "summary": {
        "ocid": "ocds-a1b1c1-370ad85a-097f-4b8c-adf8-09d840c7c48b",
        "externalReference": "2016-SMP-M75-J4_J5-supervision",
        "nature": [
            "supervision"
        ],
        "title": "Commercial Management and Assurance for the Motorways Upgrade␣
→Programme M75 J4-5",
        "description": "Specialist Professional and Technical Services␣
→Framework: Commercial Management and Assurance for the Motorways Upgrade Programme M75␣
→J4-5",
        "status": "closed",
        "tender": {
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            "procurementMethodDetails": "Framework",
            "costEstimate": {
                "amount": 5000000,
```

```
                    "currency": "GBP"
                },
                "numberOfTenderers": 1,
                "tenderers": [
                    {
                        "name": "Expert Motorway Supervisors",
                        "id": "GB-COH-22222222"
                    }
                ],
                "procuringEntity": {
                    "name": "Motorways UK",
                    "id": "GB-GOR-XX1234"
                },
                "administrativeEntity": {
                    "name": "Motorways Administrator UK",
                    "id": "GB-GOR-XX9876"
                }
            },
            "suppliers": [
                {
                    "name": "Expert Motorway Supervisors",
                    "id": "GB-COH-22222222"
                }
            ],
            "contractValue": {
                "amount": 4900000,
                "currency": "GBP"
            },
            "contractPeriod": {
                "startDate": "2017-02-24T00:00:00Z",
                "endDate": "2018-10-10T00:00:00Z"
            },
            "finalValue": {
                "amount": 4900000,
                "currency": "GBP"
            },
            "documents": [
                {
                    "id": "a1b1c1-spats-2-033-completion",
                    "documentType": "completionCertificate",
                    "title": "Completion Certificate for supervision",
                    "description": "A completion certificate for Expert Motorway
→Supervisors supervision of M75 J4-5",
                    "url": "https://example.com/Published/a1b1c1-spats-2-033-
→completion.html",
                    "datePublished": "2018-12-10T16:45:00Z",
                    "format": "text/html"
                }
            ]
        },
        "releases": [
            {
```

```
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                "date": "2017-03-02T17:14:37Z",
                "tag": [
                    "tender"
                ],
                "url": "https://example.com/releases/ex-a1b1c1--033e.json"
            },
            {
                "id": "ocds-a1b1c1-spats-2-033f",
                "date": "2017-05-02T17:14:37Z",
                "tag": [
                    "award"
                ],
                "url": "https://example.com/releases/ex-a1b1c1--033f.json"
            },
            {
                "id": "ocds-a1b1c1-spats-2-033g",
                "date": "2017-07-02T17:14:37Z",
                "tag": [
                    "implementation"
                ],
                "url": "https://example.com/Published/releases/ex-a1b1c1--033g.json"
            },
            {
                "id": "ocds-a1b1c1-spats-2-033h",
                "date": "2018-12-10T14:45:00Z",
                "tag": [
                    "contractTermination"
                ],
                "url": "https://example.com/releases/ex-a1b1c1--033h.json"
            }
        ]
    }
],
"completion": {
    "endDate": "2018-12-10T00:00:00Z",
    "endDateDetails": "Construction was delayed due to excavation problems when a␣
↪watercourse was damaged.",
    "finalValue": {
        "amount": 42100000,
        "currency": "GBP"
    },
    "finalValueDetails": "Budget increase due to construction delay.",
    "finalScope": "Upgrade of Junctions 4 and 5 and repairs to the watercourse at␣
↪Junction 5.",
    "finalScopeDetails": "Scope was expanded to include repairs to a watercourse␣
↪damaged during construction excavation."
    }
}
```

Sub-schemas

This section lists each sub-schema in the OC4IDS schema. Sub-schemas are parts of the schema that are represented as objects in OC4IDS data. Some sub-schemas are referenced from multiple places in the schema.

ContractingProcess

`ContractingProcess` is defined as:

> Within OC4IDS, a contracting process provides both summary information, and a log of changes over time, either manually curated, or automatically generated through linked OCDS releases.

This sub-schema is referenced by the following properties:

- *contractingProcesses*

Each `ContractingProcess` has the following fields:

Schema

Title	Description	Type	Format	Required
`id`		string		Required
Identifier	An identifier for this contracting process. If this contracting process has been assigned an Open Contracting Identifier (OCID) by an external platform (e.g. national procurement system), that OCID must be recorded here. If information about this contracting process has been entered manually, or from a non-OCDS system, then an identifier may be created by the system data is entered into.			
`summary`		object		
Summary	Summary information about a contracting process, including a log of changes over time. See *ContractingProcessSummary*			
`releases`		array[Release]		
Linked releases	The information known about a contracting process changes over time, both as new information becomes available, and as changes are made (such as amendments to scope and value). In the OCDS, each new update of information is known as a 'release'. This section provides space to record a link to each available release. See *LinkedRelease*			

Examples

```
[
    {
        "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b",
        "summary": {
            "ocid": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b",
            "externalReference": "2016-SMP-M75-J4_J5-construction",
            "nature": [
                "construction"
            ],
```

```
        "title": "Smart Motorways Programme - Construction - Package 3 - M75 J8 - 10
→",
        "description": "Collaborative Delivery Framework (CDF) - Lot 3B -␣
→Construction  \u00a310 to  \u00a350m",
        "status": "closed",
        "tender": {
            "procurementMethod": "limited",
            "procurementMethodDetails": "Restricted procedure",
            "costEstimate": {
                "amount": 33000000,
                "currency": "GBP"
            },
            "numberOfTenderers": 1,
            "tenderers": [
                {
                    "name": "Concrete Motorways Construction",
                    "id": "GB-COH-33333333"
                }
            ],
            "procuringEntity": {
                "name": "Motorways UK",
                "id": "GB-GOR-XX1234"
            },
            "administrativeEntity": {
                "name": "Motorways Administrator UK",
                "id": "GB-GOR-XX9876"
            }
        },
        "suppliers": [
            {
                "name": "Concrete Motorways Construction",
                "id": "GB-COH-33333333"
            }
        ],
        "contractValue": {
            "amount": 29000000,
            "currency": "GBP"
        },
        "contractPeriod": {
            "startDate": "2017-07-07T00:00:00Z",
            "endDate": "2018-07-01T00:00:00Z"
        },
        "finalValue": {
            "amount": 35250000,
            "currency": "GBP"
        },
        "transactions": [
            {
                "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-00001-1",
                "source": "https://openspending.org/motorways-uk-spending/",
                "date": "2017-08-07T00:00:00Z",
                "value": {
```

```
                "amount": 1950000,
                "currency": "GBP"
            },
            "payer": {
                "id": "GB-GOR-XX1234",
                "name": "Motorways UK"
            },
            "payee": {
                "name": "Concrete Motorways Construction",
                "id": "GB-COH-33333333"
            },
            "uri": "https://openspending.org/motorways-uk-spending/transaction/
→xyz123"
        }
    ],
    "documents": [
        {
            "id": "a1b1c1-construction-excavation-report",
            "documentType": "physicalProgressReport",
            "title": "Report on construction excavation",
            "description": "A report on the construction at Junction 5 where␣
→excavation damaged a watercourse.",
            "url": "https://example.com/Published/a1b1c1-construction-monitoring.
→html",
            "datePublished": "2018-02-01T00:00:00Z",
            "dateModified": "2018-02-11T00:00:00Z",
            "format": "text/html",
            "language": "en",
            "accessDetails": "Register for document access.",
            "author": "Motorways UK"
        },
        {

            "id": "a1b1c1-construction-completion",
            "documentType": "completionCertificate",
            "title": "Completion certificate for construction at M75 J4-5 upgrade
→",
            "description": "Completion certificate for the construction␣
→upgrading motorway M75 Junctions 4-5.",
            "url": "https://example.com/Published/a1b1c1-construction-completion.
→html",
            "datePublished": "2018-12-10T00:00:00Z",
            "format": "text/html",
            "language": "en",
            "accessDetails": "Register for document access.",
            "author": "Motorways UK"
        }
    ],
    "modifications": [
        {
            "id": "m27-4-5-construction-modification-001",
            "date": "2018-04-01T15:15:00Z",
            "description": "Construction extended for 5 months",
```

```
                "rationale": "Excavation damaged a watercourse. Construction␣
→extended for repairs.",
                "type": "duration",
                "releaseID": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-
→cdfpc3b005",
                "oldContractPeriod": {
                    "startDate": "2017-07-07T00:00:00Z",
                    "endDate": "2018-07-01T00:00:00Z"
                },
                "newContractPeriod": {
                    "startDate": "2017-07-07T00:00:00Z",
                    "endDate": "2018-12-01T00:00:00Z"
                }
            },
            {
                "id": "m27-4-5-construction-modification-002",
                "date": "2018-04-01T15:15:00Z",
                "description": "Construction scope extended to include repairing a␣
→watercourse",
                "rationale": "Excavation damaged a watercourse. Construction scope␣
→extended for repairs.",
                "type": "scope",
                "releaseID": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-
→cdfpc3b0015"
            },
            {
                "id": "m27-4-5-construction-modification-003",
                "date": "2018-04-01T15:15:00Z",
                "description": "Contract value increased from 29000000 to 35250000␣
→to include repairing a watercourse",
                "rationale": "Excavation damaged a watercourse. Construction budget␣
→extended for repairs.",
                "type": "value",
                "releaseID": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-
→cdfpc3b0015",
                "oldContractValue": {
                    "amount": 29000000,
                    "currency": "GBP"
                },
                "newContractValue": {
                    "amount": 35250000,
                    "currency": "GBP"
                }
            }
        ]
    },
    "releases": [
        {
            "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0011",
            "date": "2015-09-16T15:12:32Z",
            "tag": [
                "tender"
```

```json
                ],
                "url": "https://example.com/Published/releases/5553-b55.json"
            },
            {
                "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0012",
                "date": "2015-12-16T15:15:00Z",
                "tag": [
                    "award"
                ],
                "url": "https://example.com/Published/releases/5553-b56.json"
            },
            {
                "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0013",
                "date": "2015-12-16T15:15:00Z",
                "tag": [
                    "contract"
                ],
                "url": "https://example.com/Published/releases/5553-b57.json"
            },
            {
                "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0014",
                "date": "2015-12-16T15:15:00Z",
                "tag": [
                    "implementation"
                ],
                "url": "https://example.com/Published/releases/5553-b58.json"
            },
            {
                "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0015",
                "date": "2018-04-01T15:15:00Z",
                "tag": [
                    "implementationUpdate"
                ],
                "url": "https://example.com/Published/releases/5553-b59.json"
            },
            {
                "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0016",
                "date": "2018-12-10T09:15:00Z",
                "tag": [
                    "contractTermination"
                ],
                "url": "https://example.com/Published/releases/5553-b60.json"
            }
        ]
    },
    {
        "id": "ocds-a1b1c1-a410a80d-adc8-11e6-9901-0019b9f3037b",
        "summary": {
            "ocid": "ocds-a1b1c1-a410a80d-adc8-11e6-9901-0019b9f3037b",
            "externalReference": "2016-SMP-M75-J4_J5-design",
            "nature": [
                "design"
```

```
        ],
        "title": "Smart Motorway Design M75 J4-5",
        "description": "Design of Smart Motorway upgrade M75 J4-5",
        "status": "closed",
        "tender": {
            "procurementMethod": "limited",
            "procurementMethodDetails": "Restricted procedure",
            "costEstimate": {
                "amount": 2000000,
                "currency": "GBP"
            },
            "numberOfTenderers": 2,
            "tenderers": [
                {
                    "name": "A1 Expert Smart Moto Design",
                    "id": "GB-COH-11111111"
                },
                {
                    "name": "Motorway Design Services PLC",
                    "id": "GB-COH-12345678"
                }
            ],
            "procuringEntity": {
                "name": "Motorways UK",
                "id": "GB-GOR-XX1234"
            },
            "administrativeEntity": {
                "name": "Motorways Administrator UK",
                "id": "GB-GOR-XX9876"
            }
        },
        "suppliers": [
            {
                "name": "A1 Expert Smart Moto Design",
                "id": "GB-COH-11111111"
            }
        ],
        "contractValue": {
            "amount": 1950000,
            "currency": "GBP"
        },
        "contractPeriod": {
            "startDate": "2016-06-01T00:00:00Z",
            "endDate": "2017-07-07T00:00:00Z"
        },
        "finalValue": {
            "amount": 1950000,
            "currency": "GBP"
        },
        "documents": [
            {
                "id": "a1b1c1-tender-doc-001",
```

```
                    "documentType": "tenderNotice",
                    "title": "M72 improvements at J4-5: Tender Notice",
                    "description": "A tender notice for the design of improvements to␣
→M75 J4-5",
                    "url": "https://example.com/Published/a1b1c1-design-001.html",
                    "datePublished": "2015-12-10T16:45:00Z",
                    "format": "text/html",
                    "author": "Motorways UK"
                }
            ]
        },
        "releases": [
            {
                "id": "ocds-cdf-pc10008",
                "date": "2016-04-01T00:00:00Z",
                "tag": [
                    "tender"
                ],
                "url": "https://www.example.com/releases/ocds-cdf-pc10008.json"
            },
            {
                "id": "ocds-cdf-pc10009",
                "date": "2016-06-01T15:49:19Z",
                "tag": [
                    "award"
                ],
                "url": "https://www.example.com/releases/ocds-cdf-pc10009.json"
            },
            {
                "id": "ocds-cdf-pc10010",
                "date": "2017-08-17T00:00:00Z",
                "tag": [
                    "implementation",
                    "contractTermination"
                ],
                "url": "https://www.example.com/releases/ocds-cdf-pc10010.json"
            }
        ]
    },
    {
        "id": "ocds-a1b1c1-370ad85a-097f-4b8c-adf8-09d840c7c48b",
        "summary": {
            "ocid": "ocds-a1b1c1-370ad85a-097f-4b8c-adf8-09d840c7c48b",
            "externalReference": "2016-SMP-M75-J4_J5-supervision",
            "nature": [
                "supervision"
            ],
            "title": "Commercial Management and Assurance for the Motorways Upgrade␣
→Programme M75 J4-5",
            "description": "Specialist Professional and Technical Services Framework:␣
→Commercial Management and Assurance for the Motorways Upgrade Programme M75 J4-5",
            "status": "closed",
```

```
        "tender": {
            "procurementMethod": "limited",
            "procurementMethodDetails": "Framework",
            "costEstimate": {
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                "currency": "GBP"
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            "tenderers": [
                {
                    "name": "Expert Motorway Supervisors",
                    "id": "GB-COH-22222222"
                }
            ],
            "procuringEntity": {
                "name": "Motorways UK",
                "id": "GB-GOR-XX1234"
            },
            "administrativeEntity": {
                "name": "Motorways Administrator UK",
                "id": "GB-GOR-XX9876"
            }
        },
        "suppliers": [
            {
                "name": "Expert Motorway Supervisors",
                "id": "GB-COH-22222222"
            }
        ],
        "contractValue": {
            "amount": 4900000,
            "currency": "GBP"
        },
        "contractPeriod": {
            "startDate": "2017-02-24T00:00:00Z",
            "endDate": "2018-10-10T00:00:00Z"
        },
        "finalValue": {
            "amount": 4900000,
            "currency": "GBP"
        },
        "documents": [
            {
                "id": "a1b1c1-spats-2-033-completion",
                "documentType": "completionCertificate",
                "title": "Completion Certificate for supervision",
                "description": "A completion certificate for Expert Motorway␣
↪Supervisors supervision of M75 J4-5",
                "url": "https://example.com/Published/a1b1c1-spats-2-033-completion.
↪html",
                "datePublished": "2018-12-10T16:45:00Z",
                "format": "text/html"
```

```
                }
            ]
        },
        "releases": [
            {
                "id": "ocds-a1b1c1-spats-2-033e",
                "date": "2017-03-02T17:14:37Z",
                "tag": [
                    "tender"
                ],
                "url": "https://example.com/releases/ex-a1b1c1--033e.json"
            },
            {
                "id": "ocds-a1b1c1-spats-2-033f",
                "date": "2017-05-02T17:14:37Z",
                "tag": [
                    "award"
                ],
                "url": "https://example.com/releases/ex-a1b1c1--033f.json"
            },
            {
                "id": "ocds-a1b1c1-spats-2-033g",
                "date": "2017-07-02T17:14:37Z",
                "tag": [
                    "implementation"
                ],
                "url": "https://example.com/Published/releases/ex-a1b1c1--033g.json"
            },
            {
                "id": "ocds-a1b1c1-spats-2-033h",
                "date": "2018-12-10T14:45:00Z",
                "tag": [
                    "contractTermination"
                ],
                "url": "https://example.com/releases/ex-a1b1c1--033h.json"
            }
        ]
    }
]
```

ContractingProcessSummary

ContractingProcessSummary is defined as:

Summary information about a contracting process and any modifications to it.

Summary information can be manually entered and the `modifications` list can be used to manually record a log of changes, with the date and details of each modification.

Where OCDS data is available, most summary fields can be derived from OCDS releases, although the exact method to derive data might vary between implementations; and modifications can be identified by comparing a new release to previous releases to check for relevant changes, with the release identifier recorded in `modifications`.

This sub-schema is referenced by the following properties:

- *ContractingProcess/summary*

Each `ContractingProcessSummary` has the following fields:

Schema

Title	Description	Type	Format	Required
`ocid`		string		
Open Contracting Identifier	If this contracting process has been assigned an Open Contracting Identifier (OCID) by an external platform (e.g. national procurement system), that OCID must be recorded here. Otherwise this field should be omitted.			
`externalReference`		string		
External reference	If this contracting process is identified by some external reference number it may be recorded here.			
`nature`		array[[string]]		
Nature	Whether this contracting process relates to the design, construction and/or supervision of the project, from the contractNature codelist. More than one value may be provided if the contract is for both design and construction, or both design and supervision, etc.			
`title`		string		
Title	The formal name of this contracting process. Once set, this should not normally by changed.			
`description`		string		
Description	The description should summarize the purpose of this contract and the initial scope of the work to be carried out under the contract.			
`status`		string		
Status	The status of this contracting process. Drawn from the contractingProcessStatus codelist.			
`tender`		object		
Tender	The activities undertaken in order to enter into a contract.			
`tender/procurementMethod`		string		
Procurement method	Specify tendering method using the method codelist (open, selective, limited, direct).			
`tender/procurementMethodDetails`		string		
Procurement method details	Additional detail on the procurement method used. This field should be used to record an agreed list of procurement process types, such as: International Competitive Bidding, National Competitive Bidding, Donor Procurement Rules, Framework or Direct Award.			
`tender/costEstimate`		object		
Cost estimate	The pre-tender estimated value of the contracting process. See *Value*			
`tender/costEstimate/amount`		[number]		
Amount	Amount as a number.			
`tender/costEstimate/currency`		[string]		
Currency	The currency of the amount, from the closed currency codelist.			
`tender/numberOfTenderers`		number		

Table 2 – continued from previous page

Title	Description	Type	Format	Required
Number of tenderers	The number of parties who placed a bid during this contracting process.			
`tender/tenderers`		array[Organization reference]		
Tenderers	All parties who submit a bid on a tender. More detailed information on bids and the bidding organization can be provided using the bid extension in a linked OCDS release. See *OrganizationReference*			
`tender/tenderers/0/name`		[string]		
Organization name	The name of the party being referenced. This must match the name of an entry in the parties section.			
`tender/tenderers/0/id`		string		
Organization ID	The id of the party being referenced. This must match the id of an entry in the parties section.			
`tender/procuringEntity`		object		
Procuring entity	The name and identifier of the procuring entity responsible for this contracting process. The full details of the entity should be added to the project-level `parties` array with a `role` of 'procuringEntity'. See *OrganizationReference*			
`tender/procuringEntity/name`		[string]		
Organization name	The name of the party being referenced. This must match the name of an entry in the parties section.			
`tender/procuringEntity/id`		string		
Organization ID	The id of the party being referenced. This must match the id of an entry in the parties section.			
`tender/administrativeEntity`		object		
Administrative entity	The name and identifier of the entity responsible for contract administration if this is different from the procuring entity. The full details of the entity should be added to the project-level `parties` array with a `role` of 'administrativeEntity'. See *OrganizationReference*			
`tender/administrativeEntity/name`		[string]		
Organization name	The name of the party being referenced. This must match the name of an entry in the parties section.			
`tender/administrativeEntity/id`		string		
Organization ID	The id of the party being referenced. This must match the id of an entry in the parties section.			
`suppliers`		array[Organization reference]		
Suppliers	The name and identifier for each supplier for this contracting process. The full details of each supplier should be added to the project-level `parties` array with a `role` of 'supplier'. See *OrganizationReference*			
`contractValue`		object		
Contract value	The initial value of the contract. Changes to the initial value of the contract should be recorded in `modifications`. See *Value*			

Table 2 – continued from previous page

Title	Description	Type	Format	Required
`contractPeriod`		object		
Contract period	The initial duration of the contract. Changes to the initial duration of the contract should be recorded in `modifications`. See *Period*			
`finalValue`		object		
Final value	This should be provided when the contracting process is complete. This can be derived from the sum of `contract.implementation.transactions` values in linked OCDS data where available. In other cases, it might need to be identified and entered manually based on other project documentation. See *Value*			
`documents`		array[Document]		
Documents	Additional documentation about this contracting process may be provided here, including reports and evaluations produced through a monitoring process, or links to web pages where further information about this process can be found. Where OCDS releases are published, further documents can be found by looking at the published releases. See *Document*			
`modifications`		array[Modification]		
Modifications	Details of changes to the duration, price, scope or other significant features of the contracting process should be logged here. See *Modification*			
`transactions`		array[Transaction information]		
Transactions	The spending transactions made against this contracting process. See *Transaction*			

Examples

```
{
    "ocid": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b",
    "externalReference": "2016-SMP-M75-J4_J5-construction",
    "nature": [
        "construction"
    ],
    "title": "Smart Motorways Programme - Construction - Package 3 - M75 J8 - 10",
    "description": "Collaborative Delivery Framework (CDF) - Lot 3B - Construction \
→u00a310 to \u00a350m",
    "status": "closed",
    "tender": {
        "procurementMethod": "limited",
        "procurementMethodDetails": "Restricted procedure",
        "costEstimate": {
            "amount": 33000000,
            "currency": "GBP"
```

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```
        },
        "numberOfTenderers": 1,
        "tenderers": [
            {
                "name": "Concrete Motorways Construction",
                "id": "GB-COH-33333333"
            }
        ],
        "procuringEntity": {
            "name": "Motorways UK",
            "id": "GB-GOR-XX1234"
        },
        "administrativeEntity": {
            "name": "Motorways Administrator UK",
            "id": "GB-GOR-XX9876"
        }
    },
    "suppliers": [
        {
            "name": "Concrete Motorways Construction",
            "id": "GB-COH-33333333"
        }
    ],
    "contractValue": {
        "amount": 29000000,
        "currency": "GBP"
    },
    "contractPeriod": {
        "startDate": "2017-07-07T00:00:00Z",
        "endDate": "2018-07-01T00:00:00Z"
    },
    "finalValue": {
        "amount": 35250000,
        "currency": "GBP"
    },
    "transactions": [
        {
            "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-00001-1",
            "source": "https://openspending.org/motorways-uk-spending/",
            "date": "2017-08-07T00:00:00Z",
            "value": {
                "amount": 1950000,
                "currency": "GBP"
            },
            "payer": {
                "id": "GB-GOR-XX1234",
                "name": "Motorways UK"
            },
            "payee": {
                "name": "Concrete Motorways Construction",
                "id": "GB-COH-33333333"
            },
```

```
                "uri": "https://openspending.org/motorways-uk-spending/transaction/xyz123"
            }
        ],
        "documents": [
            {
                "id": "a1b1c1-construction-excavation-report",
                "documentType": "physicalProgressReport",
                "title": "Report on construction excavation",
                "description": "A report on the construction at Junction 5 where excavation␣
→damaged a watercourse.",
                "url": "https://example.com/Published/a1b1c1-construction-monitoring.html",
                "datePublished": "2018-02-01T00:00:00Z",
                "dateModified": "2018-02-11T00:00:00Z",
                "format": "text/html",
                "language": "en",
                "accessDetails": "Register for document access.",
                "author": "Motorways UK"
            },
            {
                "id": "a1b1c1-construction-completion",
                "documentType": "completionCertificate",
                "title": "Completion certificate for construction at M75 J4-5 upgrade",
                "description": "Completion certificate for the construction upgrading␣
→motorway M75 Junctions 4-5.",
                "url": "https://example.com/Published/a1b1c1-construction-completion.html",
                "datePublished": "2018-12-10T00:00:00Z",
                "format": "text/html",
                "language": "en",
                "accessDetails": "Register for document access.",
                "author": "Motorways UK"
            }
        ],
        "modifications": [
            {
                "id": "m27-4-5-construction-modification-001",
                "date": "2018-04-01T15:15:00Z",
                "description": "Construction extended for 5 months",
                "rationale": "Excavation damaged a watercourse. Construction extended for␣
→repairs.",
                "type": "duration",
                "releaseID": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b005",
                "oldContractPeriod": {
                    "startDate": "2017-07-07T00:00:00Z",
                    "endDate": "2018-07-01T00:00:00Z"
                },
                "newContractPeriod": {
                    "startDate": "2017-07-07T00:00:00Z",
                    "endDate": "2018-12-01T00:00:00Z"
                }
            },
            {
                "id": "m27-4-5-construction-modification-002",
```

```
            "date": "2018-04-01T15:15:00Z",
            "description": "Construction scope extended to include repairing a␣
↪watercourse",
            "rationale": "Excavation damaged a watercourse. Construction scope extended␣
↪for repairs.",
            "type": "scope",
            "releaseID": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0015"
        },
        {
            "id": "m27-4-5-construction-modification-003",
            "date": "2018-04-01T15:15:00Z",
            "description": "Contract value increased from 29000000 to 35250000 to␣
↪include repairing a watercourse",
            "rationale": "Excavation damaged a watercourse. Construction budget extended␣
↪for repairs.",
            "type": "value",
            "releaseID": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0015",
            "oldContractValue": {
                "amount": 29000000,
                "currency": "GBP"
            },
            "newContractValue": {
                "amount": 35250000,
                "currency": "GBP"
            }
        }
    ]
}
```

LinkedRelease

`LinkedRelease` is defined as:

> A release of data represents the information known or updated at a particular point in time.

This sub-schema is referenced by the following properties:

- *ContractingProcess/releases*

Each `LinkedRelease` has the following fields:

Schema

Title	Description	Type	Format	Required
`id`		string		Required
ID	A unique identifier for this update of information. This should be taken from the OCDS `release.id`, if available.			
`tag`		array[string]		Required
Re-lease tag	One or more values from the releaseTag codelist used to indicate the information contained in this release, and the stage of the contracting process it represents. This should be filled from the OCDS `release.tag`, if available.			
`date`		string	date-time	Required
Date	The effective date of this release/update. This should be filled from the OCDS `release.date`, if available.			
`url`		string	uri	Required
URL	A URL (web link) to a release package containing the OCDS release, if available.			

Examples

```
[
    {
        "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0011",
        "date": "2015-09-16T15:12:32Z",
        "tag": [
            "tender"
        ],
        "url": "https://example.com/Published/releases/5553-b55.json"
    },
    {
        "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0012",
        "date": "2015-12-16T15:15:00Z",
        "tag": [
            "award"
        ],
        "url": "https://example.com/Published/releases/5553-b56.json"
    },
    {
        "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0013",
        "date": "2015-12-16T15:15:00Z",
        "tag": [
            "contract"
        ],
        "url": "https://example.com/Published/releases/5553-b57.json"
    },
    {
        "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0014",
        "date": "2015-12-16T15:15:00Z",
        "tag": [
            "implementation"
        ],
        "url": "https://example.com/Published/releases/5553-b58.json"
```

```
    },
    {
        "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0015",
        "date": "2018-04-01T15:15:00Z",
        "tag": [
            "implementationUpdate"
        ],
        "url": "https://example.com/Published/releases/5553-b59.json"
    },
    {
        "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0016",
        "date": "2018-12-10T09:15:00Z",
        "tag": [
            "contractTermination"
        ],
        "url": "https://example.com/Published/releases/5553-b60.json"
    }
]
```

Modification

`Modification` is defined as:

> Contains a structured description of any changes, along with a free text justification.

This sub-schema is referenced by the following properties:

- *ContractingProcessSummary/modifications*

Each `Modification` has the following fields:

Schema

Title	Description	Type	Format	Required
`id`		string		Required
Identifier	A local identifier for this modification.			
`date`		[string]	date-time	
Date	The date this modification was recorded.			
`description`		[string]		
Description	Details of the modification. This may be free text, or may be generated automatically and provide a structured description of the change.			
`rationale`		[string]		
Rationale	A summary of the reasons which have led to this modification to the originally planned scope, period or value.			
`type`		[string]		
Type	A value from the modificationType codelist, indicating whether the modification relates to the duration, value, scope or other aspect of the contract.			
`releaseID`		[string]		
Release ID	The identifier for the OCDS release this modification relates to. The referenced release should appear in the list of linked releases for this contracting process.			
`oldContractValue`		object		
Old contract value	Contract value before the modification, taking into account any prior modifications. See *Value*			
`newContractValue`		object		
New contract value	Contract value after the modification. See *Value*			
`oldContractPeriod`		object		
Old contract period	Contract period before the modification, taking into account any prior modifications. See *Period*			
`newContractPeriod`		object		
New contract period	Contract period after the modification. See *Period*			

Examples

```
[
    {
        "id": "m27-4-5-construction-modification-001",
        "date": "2018-04-01T15:15:00Z",
        "description": "Construction extended for 5 months",
        "rationale": "Excavation damaged a watercourse. Construction extended for
→repairs.",
        "type": "duration",
```

(continued from previous page)

```
        "releaseID": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b005",
        "oldContractPeriod": {
            "startDate": "2017-07-07T00:00:00Z",
            "endDate": "2018-07-01T00:00:00Z"
        },
        "newContractPeriod": {
            "startDate": "2017-07-07T00:00:00Z",
            "endDate": "2018-12-01T00:00:00Z"
        }
    },
    {
        "id": "m27-4-5-construction-modification-002",
        "date": "2018-04-01T15:15:00Z",
        "description": "Construction scope extended to include repairing a watercourse",
        "rationale": "Excavation damaged a watercourse. Construction scope extended for␣
→repairs.",
        "type": "scope",
        "releaseID": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0015"
    },
    {
        "id": "m27-4-5-construction-modification-003",
        "date": "2018-04-01T15:15:00Z",
        "description": "Contract value increased from 29000000 to 35250000 to include␣
→repairing a watercourse",
        "rationale": "Excavation damaged a watercourse. Construction budget extended for␣
→repairs.",
        "type": "value",
        "releaseID": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-cdfpc3b0015",
        "oldContractValue": {
            "amount": 29000000,
            "currency": "GBP"
        },
        "newContractValue": {
            "amount": 35250000,
            "currency": "GBP"
        }
    }
]
```

Period

Dates MUST be expressed using a full ISO 8601 date-time including a timezone. E.g.:

> 2018-09-18T11:26:04+01:00

Where the source system does not contain time information, a judgment ought to be made as to the relevant time to attach (e.g. start of the day; end of the working day etc.).

`Period` is defined as:

> Key events during a project or contracting process may have a known start date, end date, duration, or maximum extent (the latest date the period can extend to). In some cases, not all of these fields will have known or relevant values.

This sub-schema is referenced by the following properties:

- *period*
- *assetLifetime*
- *ContractingProcessSummary/contractPeriod*
- *Modification/oldContractPeriod*
- *Modification/newContractPeriod*
- *BudgetBreakdown/period*
- *Observation/period*

Each `Period` has the following fields:

Schema

Title	Description	Type	Format	Required
startDate		[string]	date-time	
Start date	The start date for the period. When known, a precise start date must be provided.			
endDate		[string]	date-time	
End date	The end date for the period. When known, a precise end date must be provided.			
maxExtentDate		[string]	date-time	
Maximum extent	The period cannot be extended beyond this date. This field can be used to express the maximum available date for extension or renewal of this period.			
durationInDays		[integer]		
Duration (days)	The maximum duration of this period in days. A user interface can collect or display this data in months or years as appropriate, and then convert it into days when storing this field. This field can be used when exact dates are not known. If a startDate and endDate are set, this field, if used, should be equal to the difference between startDate and endDate. Otherwise, if a startDate and maxExtentDate are set, this field, if used, should be equal to the difference between startDate and maxExtentDate.			

Examples

```
{
    "startDate": "2016-01-01T00:00:00Z",
    "endDate": "2018-12-10T00:00:00Z",
    "durationInDays": 1074
}
```

```
{
    "startDate": "2018-07-01T00:00:00Z",
    "endDate": "2040-07-01T00:00:00Z",
```

```
    "durationInDays": 8027
}
```

```
{
    "startDate": "2016-01-01T00:00:00Z",
    "endDate": "2016-12-31T00:00:00Z"
}
```

```
{
    "startDate": "2018-01-07T00:00:00Z",
    "endDate": "2018-01-07T00:00:00Z"
}
```

```
{
    "startDate": "2017-07-07T00:00:00Z",
    "endDate": "2018-07-01T00:00:00Z"
}
```

```
{
    "startDate": "2017-07-07T00:00:00Z",
    "endDate": "2018-07-01T00:00:00Z"
}
```

```
{
    "startDate": "2017-07-07T00:00:00Z",
    "endDate": "2018-12-01T00:00:00Z"
}
```

```
{
    "startDate": "2018-01-07T00:00:00Z",
    "endDate": "2018-01-07T00:00:00Z"
}
```

Classification

Classification is defined as:

> A classification consists of at least two parts: an identifier for the list (scheme) from which the classification is taken, and an identifier for the category from that list being applied. It is useful to also publish a text label and/or URI that users can draw on to interpret the classification.

This sub-schema is referenced by the following properties:

- *additionalClassifications*

Each Classification has the following fields:

Schema

Title	Description	Type	Format	Required
scheme		string		
Scheme	The scheme or codelist from which the classification code is taken, using the open classificationScheme codelist.			
id		string		
ID	The classification code taken from the scheme.			
description		[string]		
Description	A textual description or title for the classification code.			
uri		[string]	uri	
URI	A URI to uniquely identify the classification code.			

Examples

```
[
    {
        "scheme": "COFOG",
        "id": "04.5.1",
        "description": "Road transport (CS)"
    }
]
```

Location

`Location` is defined as:

> The location where activity related to this project will be delivered, or will take place. A location may be described using a geometry (point location, line or polygon), a gazetteer entry, an address, or a combination of these.

This sub-schema is referenced by the following properties:

- *locations*

Each `Location` has the following fields:

Schema

Ti-tle	Description	Type	Format	Required
`id`		string		Required
Iden-ti-fier	A local identifier for this location, unique within the array this location appears in.			
`description`		[string]		
De-scrip-tion	A name or description of this location. This might include the name(s) of the location(s), or might provide a human-readable description of the location to be covered.			
`geometry`		object		
Ge-om-etry	We follow the GeoJSON standard to express basic location information, using longitude, latitude, and op-tional elevation values in the WGS84 (EPSG:4326) projection. A point location can be identified by geocod-ing a delivery address. For concession licenses, or other contracts covering a polygon location which is not contained in a known gazetteer, polygon and multi-polygon can be used.			
`geometry/type`		[string]		
Type	The type of GeoJSON Geometry Objects being provided. To provide longitude, latitude, and optional ele-vation, use 'Point', and enter an array of [longitude, latitude] or [longitude, latitude, elevation] as the value of the coordinates field: e.g. [-122.085, 37.42].			
`geometry/coordinates`		array[[number, array]]		
Co-or-di-nates	The relevant array of points, e.g. [longitude, latitude] or [longitude, latitude, elevation], or a nested array of points, for the GeoJSON geometry being described. The longitude and latitude must be expressed in decimal degrees in the WGS84 (EPSG:4326) projection.			
`gazetteer`		object		
Gazetteer	Identifiers from a gazetteer (a geographical index or directory) for the location.			
`gazetteer/scheme`		[string]		
Gazetteer scheme	The identifier of the gazetteer. The `locationGazetteers.csv` codelist provides details of services, where available, that can resolve a gazetteer entry to provide location names.			
`gazetteer/identifiers`		array[[string]]		
Iden-ti-fiers	An array of one or more codes drawn from the gazetteer indicated by the `scheme` field.			
`uri`		[string]		
URI	A URI to a further description of the activity location. This might be a human-readable document with information on the location, or a machine-readable description of the location.			
`address`		object		
Ad-dress	A physical address where works will take place. See *Address*			

Examples

```
[
    {
        "id": "001",
        "description": "M75 J4 Patcham Interchange",
        "geometry": {
            "type": "Point",
            "coordinates": [
                52.2571843,
                -0.1163333
            ]
        },
        "gazetteer": {
            "scheme": "GEONAMES",
            "identifiers": [
                "2657507"
            ]
        },
        "address": {
            "streetAddress": "Patcham Interchange, New Road",
            "locality": "Patcham",
            "region": "Westshire",
            "postalCode": "WS20 5TV",
            "countryName": "United Kingdom"
        },
        "uri": "https://www.openstreetmap.org/node/202995"
    },
    {
        "id": "002",
        "description": "M75 J5 Windlesham interchange",
        "geometry": {
            "type": "Point",
            "coordinates": [
                52.1373584,
                -0.1198955
            ]
        },
        "gazetteer": {
            "scheme": "OSMN",
            "identifiers": [
                "https://www.openstreetmap.org/node/26571091"
            ]
        },
        "address": {
            "streetAddress": "Windlesham Interchange, Old Road",
            "locality": "Windlesham",
            "region": "Westshire",
            "postalCode": "WS21 6RZ",
            "countryName": "United Kingdom"
        },
        "uri": "https://www.openstreetmap.org/node/1638915385"
    }
```

```
]
```

Value

`Value` is defined as:

> Financial values should be published with a currency attached.

This sub-schema is referenced by the following properties:

- *budget/amount*
- *completion/finalValue*
- *ContractingProcessSummary/tender/costEstimate*
- *ContractingProcessSummary/contractValue*
- *ContractingProcessSummary/finalValue*
- *Modification/oldContractValue*
- *Modification/newContractValue*
- *BudgetBreakdown/amount*
- *Observation/value*
- *Transaction/value*

Each `Value` has the following fields:

Schema

Title	Description	Type	Format	Required
`amount`		[number]		
Amount	Amount as a number.			
`currency`		[string]		
Currency	The currency of the amount, from the closed currency codelist.			

Examples

```
{
    "amount": 40000000,
    "currency": "GBP"
}
```

```
{
    "amount": 10000000,
    "currency": "GBP"
}
```

```
{
    "amount": 33000000,
    "currency": "GBP"
}
```

```
{
    "amount": 29000000,
    "currency": "GBP"
}
```

```
{
    "amount": 35250000,
    "currency": "GBP"
}
```

```
{
    "amount": 29000000,
    "currency": "GBP"
}
```

```
{
    "amount": 35250000,
    "currency": "GBP"
}
```

```
{
    "amount": 1950000,
    "currency": "GBP"
}
```

```
{
    "amount": 42100000,
    "currency": "GBP"
}
```

Organization

`Organization` is defined as:

> A party (organization)

This sub-schema is referenced by the following properties:

- *parties*

Each `Organization` has the following fields:

Schema

Title	Description	Type	Format	Required
`name`		[string]		
Common name	A common name for this organization or other participant in the contracting process. The identifier object provides a space for the formal legal name, and so this may either repeat that value, or may provide the common name by which this organization or entity is known. This field may also include details of the department or sub-unit involved in this contracting process.			
`id`		string		
Entity ID	The ID used for cross-referencing to this party from other sections of the release. This field may be built with the following structure {identifier.scheme}-{identifier.id}(-{department-identifier}).			
`identifier`		object		
Primary identifier	The primary identifier for this organization or participant. Identifiers that uniquely pick out a legal entity should be preferred. Consult the organization identifier guidance for the preferred scheme and identifier to use. See *Identifier*			
`additionalIdentifiers`		array[Identifier]		
Additional identifiers	A list of additional / supplemental identifiers for the organization or participant, using the organization identifier guidance. This can be used to provide an internally used identifier for this organization in addition to the primary legal entity identifier. See *Identifier*			
`address`		object		
Address	An address. This may be the legally registered address of the organization, or may be a correspondence address for this particular contracting process. See *Address*			
`contactPoint`		object		
Contact point	Contact details that can be used for this party. See *ContactPoint*			
`roles`		array[string]		
Party roles	The party's role(s) in the project, using the open partyRole codelist.			
`people`		array[Person]		
People	People associated with, representing, or working on behalf of this organization in respect of this project. See *Person*			

Examples

```
[
    {
        "name": "Motorways UK",
        "id": "GB-GOR-XX1234",
        "identifier": {
            "scheme": "GB-GOR",
            "legalName": "Motorways UK",
            "id": "XX1234",
            "uri": "https://government-organisation.register.gov.uk/records/XX1234"
        },
        "additionalIdentifiers": [
            {
                "scheme": "GB-GOV",
                "legalName": "Motorways UK",
                "id": "ABCDE"
            }
        ],
        "address": {
            "postalCode": "LL55 4NY",
            "countryName": "United Kingdom",
            "streetAddress": "8 Mountain Walk",
            "region": "Westshire",
            "locality": "Patcham"
        },
        "contactPoint": {
            "name": "Motorways Manager",
            "email": "EX12345@motorwaysuk.gov.uk",
            "telephone": "+44 0123 456 7890",
            "faxNumber": "+44 0123 456 7891"
        },
        "roles": [
            "procuringEntity",
            "buyer",
            "publicAuthority",
            "funder"
        ],
        "people": [
            {
                "id": "1",
                "name": "Jane Bloggs",
                "jobTitle": "Chair"
            }
        ]
    },
    {
        "name": "A1 Expert Smart Moto Design",
        "id": "GB-COH-11111111",
        "identifier": {
            "scheme": "GB-COH",
            "id": "11111111",
            "legalName": "A1 Expert Smart Moto Design Ltd",
```

```
            "uri": "https://beta.companieshouse.gov.uk/company/11111111"
        },
        "address": {
            "streetAddress": "Farm Grove, Prince Road",
            "locality": "Patcham",
            "region": "Westshire",
            "postalCode": "WS18 5BW",
            "countryName": "United Kingdom"
        },
        "contactPoint": {
            "name": "Kim Designer",
            "email": "kim.designerd@a1expertsmart.com",
            "telephone": "+44 0123 456 7890",
            "url": "https://www.example.com"
        },
        "roles": [
            "supplier",
            "tenderer"
        ]
    },
    {
        "name": "Motorway Design Services PLC",
        "id": "GB-COH-12345678",
        "identifier": {
            "scheme": "GB-COH",
            "id": "12345678",
            "legalName": "Motorway Design Services PLC",
            "uri": "https://beta.companieshouse.gov.uk/company/22222222"
        },
        "address": {
            "streetAddress": "567 High Street",
            "locality": "Mareham",
            "region": "Eastshire",
            "postalCode": "ES22 3TW",
            "countryName": "United Kingdom"
        },
        "roles": [
            "tenderer"
        ]
    },
    {
        "name": "Expert Motorway Supervisors Ltd",
        "id": "GB-COH-22222222",
        "identifier": {
            "scheme": "GB-COH",
            "id": "22222222",
            "legalName": "Expert Motorway Supervisors Ltd",
            "uri": "https://beta.companieshouse.gov.uk/company/22222222"
        },
        "address": {
            "streetAddress": "9 Seaview Road",
            "locality": "London",
```

```
                "region": "London",
                "postalCode": "SE1 1EZ",
                "countryName": "United Kingdom"
            },
            "contactPoint": {
                "name": "Supervisor Manager",
                "email": "supervisor.manager@example.com",
                "telephone": "+44 0123 456 7890",
                "faxNumber": "+44 0123 456 7891",
                "url": "https://www.example.com"
            },
            "roles": [
                "supplier",
                "tenderer"
            ]
        },
        {

            "name": "Concrete Motorways Construction",
            "id": "GB-COH-33333333",
            "identifier": {
                "scheme": "GB-COH",
                "id": "33333333",
                "legalName": "Concrete Motorways Construction Ltd",
                "uri": "https://beta.companieshouse.gov.uk/company/33333333"
            },
            "address": {
                "streetAddress": "5 Example Grove",
                "locality": "London",
                "region": "London",
                "postalCode": "SW1A 1AA",
                "countryName": "United Kingdom"
            },
            "contactPoint": {
                "name": "Construction Manager",
                "email": "construction.example@example.com",
                "telephone": "+44 0123 456 7890",
                "faxNumber": "+44 0123 456 7891",
                "url": "https://www.example.com"
            },
            "roles": [
                "supplier",
                "tenderer"
            ]
        },
        {

            "name": "Motorways Administrator UK",
            "id": "GB-GOR-XX9876",
            "identifier": {
                "scheme": "GB-GOR",
                "legalName": "Motorways Administrator UK",
                "id": "XX9876",
                "uri": "https://government-organisation.register.gov.uk/records/XX9876"
```

```
        },
        "address": {
            "postalCode": "BN18 9AB",
            "countryName": "United Kingdom",
            "streetAddress": "High Street, Arundel",
            "region": "West Sussex"
        },
        "contactPoint": {
            "name": "Motorways Administrator",
            "email": "EX6789@motorways-administration-uk.gov.uk",
            "telephone": "+44 0678 456 7890",
            "faxNumber": "+44 0678 456 7891"
        },
        "roles": [
            "administrativeEntity"
        ],
        "people": [
            {
                "id": "1",
                "name": "Elstra Lovelace",
                "jobTitle": "Commercial Contract Officer"
            }
        ]
    }
]
```

OrganizationReference

`OrganizationReference` is defined as:

> The id and name of the party being referenced. Used to cross-reference to the parties section

This sub-schema is referenced by the following properties:

- *publicAuthority*
- *ContractingProcessSummary/tender/tenderers*
- *ContractingProcessSummary/tender/procuringEntity*
- *ContractingProcessSummary/tender/administrativeEntity*
- *ContractingProcessSummary/suppliers*
- *BudgetBreakdown/sourceParty*
- *Transaction/payer*
- *Transaction/payee*

Each `OrganizationReference` has the following fields:

Schema

Title	Description	Type	Format	Required
`name`		[string]		
Organization name	The name of the party being referenced. This must match the name of an entry in the parties section.			
`id`		string		
Organization ID	The id of the party being referenced. This must match the id of an entry in the parties section.			

Examples

```
{
    "name": "Motorways UK",
    "id": "GB-GOR-XX1234"
}
```

```
{
    "name": "Motorways UK",
    "id": "GB-GOR-XX1234"
}
```

```
[
    {
        "name": "Concrete Motorways Construction",
        "id": "GB-COH-33333333"
    }
]
```

```
{
    "name": "Motorways UK",
    "id": "GB-GOR-XX1234"
}
```

```
{
    "name": "Motorways Administrator UK",
    "id": "GB-GOR-XX9876"
}
```

```
[
    {
        "name": "Concrete Motorways Construction",
        "id": "GB-COH-33333333"
    }
]
```

```
{
    "id": "GB-GOR-XX1234",
    "name": "Motorways UK"
}
```

```
{
    "name": "Concrete Motorways Construction",
    "id": "GB-COH-33333333"
}
```

Address

The address sub-schema re-uses fields from schema.org and vCard. In the event source data cannot be broken down into these parts, data should contain at least a `streetAddress` and `postalCode`.

When working with data, users ought to be aware that addresses might not always be broken down using all the fields the schema provides.

`Address` is defined as:

> An address.

This sub-schema is referenced by the following properties:

- *Location/address*

- *Organization/address*

Each `Address` has the following fields:

Schema

Title	Description	Type	Format	Required
`streetAddress`		[string]		
Street address	The street address. For example, 1600 Amphitheatre Pkwy.			
`locality`		[string]		
Locality	The locality. For example, Mountain View.			
`region`		[string]		
Region	The region. For example, CA.			
`postalCode`		[string]		
Postal code	The postal code. For example, 94043.			
`countryName`		[string]		
Country name	The country name. For example, United States.			

Examples

```
{
    "streetAddress": "Patcham Interchange, New Road",
    "locality": "Patcham",
    "region": "Westshire",
    "postalCode": "WS20 5TV",
    "countryName": "United Kingdom"
}
```

```
{
    "postalCode": "LL55 4NY",
    "countryName": "United Kingdom",
    "streetAddress": "8 Mountain Walk",
    "region": "Westshire",
    "locality": "Patcham"
}
```

ContactPoint

ContactPoint is defined as:

> A person, contact point or department to contact in relation to this contracting process.

This sub-schema is referenced by the following properties:

- *Organization/contactPoint*

Each ContactPoint has the following fields:

Schema

Title	Description	Type	Format	Required
name		[string]		
Name	The name of the contact person, department, or contact point, for correspondence relating to this project.			
email		[string]		
Email	The e-mail address of the contact point/person.			
telephone		[string]		
Telephone	The telephone number of the contact point/person. This should include the international dialing code.			
faxNumber		[string]		
Fax number	The fax number of the contact point/person. This should include the international dialing code.			
url		[string]	uri	
URL	A web address for the contact point/person.			

Examples

```
{
    "name": "Motorways Manager",
    "email": "EX12345@motorwaysuk.gov.uk",
    "telephone": "+44 0123 456 7890",
    "faxNumber": "+44 0123 456 7891"
}
```

BudgetBreakdown

For more information about this sub-schema, see the OCDS Budget Breakdown extension documentation. BudgetBreakdown can also be extended further to include budget classifications data following the pattern described in the OCDS Budgets and Spend extension.

BudgetBreakdown is defined as:

> This section allows a detailed budget breakdown to be expressed, covering multiple budget sources and multiple periods

This sub-schema is referenced by the following properties:

- *budget/budgetBreakdown*

Each BudgetBreakdown has the following fields:

Schema

Title	Description	Type	Format	Required
`id`		string		Required
Iden-tifier	An identifier for this particular budget entry.			
`description`		[string]		
De-scrip-tion	A short free text description of this budget entry.			
`amount`		object		
Amount	The value of the budget line item. See *Value*			
`approvalDate`		string	date-time	
Ap-proval date	The date on which this budget entry was approved. Where documentary evidence for this exists, it may be included among the project documents with `.documentType` set to 'budgetApproval'.			
`uri`		[string]	uri	
Linked bud-get infor-ma-tion	A URI pointing directly to a machine-readable information about this budget entry.			
`period`		object		
Bud-get period	The period covered by this budget entry. See *Period*			
`sourceParty`		object		
Source party	An organization reference, linking to the entry in the `parties` section describing the organization providing the funds for this part of the budget. The party must have the 'funder' role. If the budget amount is positive, this indicates a flow of resources from the party to the contracting process. If the budget amount is negative, it indicates a payment from the contracting process to this party. See *OrganizationReference*			

Examples

```
[
    {
        "id": "2016",
        "description": "2016 budget allocation",
        "amount": {
            "amount": 10000000,
            "currency": "GBP"
        },
        "period": {
```

```
                "startDate": "2016-01-01T00:00:00Z",
                "endDate": "2016-12-31T00:00:00Z"
            },
            "sourceParty": {
                "name": "Motorways UK",
                "id": "GB-GOR-XX1234"
            }
        },
        {
            "id": "2017",
            "description": "2017 budget allocation",
            "amount": {
                "amount": 20000000,
                "currency": "GBP"
            },
            "period": {
                "startDate": "2017-01-01T00:00:00Z",
                "endDate": "2017-12-31T00:00:00Z"
            },
            "sourceParty": {
                "name": "Motorways UK",
                "id": "GB-GOR-XX1234"
            }
        },
        {
            "id": "2018",
            "description": "2018 budget allocation",
            "amount": {
                "amount": 10000000,
                "currency": "GBP"
            },
            "period": {
                "startDate": "2018-01-01T00:00:00Z",
                "endDate": "2018-12-31T00:00:00Z"
            },
            "sourceParty": {
                "name": "Motorways UK",
                "id": "GB-GOR-XX1234"
            }
        }
    }
]
```

Document

`Document` is defined as:

> Links to, or descriptions of, external documents can be attached at various locations within the standard. Documents can be supporting information, formal notices, downloadable forms, or any other kind of resource that ought to be made public as part of full open contracting.

This sub-schema is referenced by the following properties:

- *documents*
- *ContractingProcessSummary/documents*

Each `Document` has the following fields:

Schema

Title	Description	Type	Format	Required
`id`		string		Required
ID	A local, unique identifier for this document. This field is used to keep track of multiple revisions of a document through the compilation from release to record mechanism.			
`documentType`		[string]		
Document type	A classification of the document described, using the open documentType codelist.			
`title`		[string]		
Title	The document title.			
`description`		[string]		
Description	Where a link to a full document is provided, the description should provide a 1 - 3 paragraph summary of the information the document contains, and the `pageStart` field should be used to make sure readers can find the correct section of the document containing more information. Where there is no linked document available, the description field may contain all the information required by the current `documentType`. Line breaks in text (represented in JSON using \n\n) must be respected by systems displaying this information, and systems may also support basic HTML tags (H1-H6, B, I, U, strong, A and optionally IMG) or markdown syntax for formatting.			
`url`		[string]	uri	
URL	This should be a direct link to the document or web page where the information described by the current documentType exists.			
`datePublished`		[string]	date-time	
Date published	The date on which the document was first published. This is particularly important for legally important documents such as notices of a tender.			
`dateModified`		[string]	date-time	
Date modified	Date that the document was last modified			
`format`		[string]		
Format	The format of the document, using the open IANA Media Types codelist (see the values in the 'Template' column), or using the 'offline/print' code if the described document is published offline. For example, web pages have a format of 'text/html'.			
`language`		[string]		
Language	The language of the linked document using either two-letter ISO639-1, or extended BCP47 language tags. The use of lowercase two-letter codes from ISO639-1 is recommended unless there is a clear user need for distinguishing the language subtype.			
`pageStart`		[string]		
Page start	When the information referenced exists within a large document, indicate the first page on which it can be found. This should refer to the printed page number, not the page number reported by software applications.			
`pageEnd`		[string]		
Page end	When the information referenced exists within a large document, indicate the last page on which it can be found. This should refer to the printed page number, not the page number reported by software applications.			
`accessDetails`		[string]		
Access details	A description of any special arrangements needed to access this document, for example: registering for access, paying a fee, or visiting a location to inspect the document.			

Examples

```
[
    {
        "id": "plan-1234",
        "documentType": "procurementPlan",
        "title": "M75 Junction 4 to 5 Smart Motorway procurement plan.",
        "description": "Procurement plan for the M75 Junction 4 to 5 Smart Motorway
→covering the full life-cycle of the Smart Motorway junction upgrade.",
        "url": "https://example.com/he/M75-junctions-4-to-5-smart-motorway/results/M75J4-
→5+procurement+plan.pdf",
        "datePublished": "2016-05-01T00:00:00Z",
        "dateModified": "2016-05-11T00:00:00Z",
        "format": "application/pdf",
        "language": "en",
        "author": "Fred Consulter"
    },
    {
        "id": "environmental-impact-5678-r4",
        "documentType": "environmentalImpact",
        "title": "Environmental Study Report",
        "description": "An Environmental Study Report into the M75 Junction 4 to 5 Smart
→Motorway Upgrade",
        "url": "http://example.com/roads/road-projects/
→M75+junctions+4+to+5++smart+motorway/M75+J4-5SM+Environmental+Study+Report.pdf",
        "datePublished": "2016-02-10T00:00:00Z",
        "dateModified": "2016-12-15T00:00:00Z",
        "format": "application/pdf",
        "author": "Jane Environment, Environment Motorway Consultants Ltd."
    },
    {
        "id": "budget-approval-5678",
        "documentType": "budgetApproval",
        "title": "Approval of Budget for M75 J4-5 upgrade",
        "description": "A full budget approval document for the M75 J4-5 upgrade with
→budgeting for design, build and supervision.",
        "url": "http://example.com/roads/road-projects/
→M75+unctions+4+to+5+budget+approval.pdf",
        "datePublished": "2015-10-01T00:00:00Z",
        "dateModified": "2018-03-01T00:00:00Z",
        "format": "application/pdf",
        "author": "UK Motorways Budget Agency",
        "pageStart": "55",
        "pageEnd": "60",
        "accessDetails": "Documents can be inspected in the Motoways UK Example Archive
→or users can register for free to access."
    },
    {
        "id": "feasibility-study-8976",
        "documentType": "feasibilityStudy",
        "title": "Feasibility Study for Smart Motorway project: benefits and costs",
        "description": "A report commissioned by Motorways UK to carry out initial
→investigations and site visits to esablish the suitability of upgrading the existing
```

```
↪motorway junctions M75 J4-5 to Smart Motorways.\n\nThe survey recorded existing␣
↪motorway infrastructures and concluded that upgrading to Smart Motorways is feasible. \
↪n\nAdditional design issues are noted in the report.",
        "datePublished": "2015-10-10T00:00:00Z",
        "format": "application/pdf",
        "author": "Feasibility Consultants Example Limited",
        "pageStart": "55"
    }
]
```

```
[
    {
        "id": "a1b1c1-construction-excavation-report",
        "documentType": "physicalProgressReport",
        "title": "Report on construction excavation",
        "description": "A report on the construction at Junction 5 where excavation␣
↪damaged a watercourse.",
        "url": "https://example.com/Published/a1b1c1-construction-monitoring.html",
        "datePublished": "2018-02-01T00:00:00Z",
        "dateModified": "2018-02-11T00:00:00Z",
        "format": "text/html",
        "language": "en",
        "accessDetails": "Register for document access.",
        "author": "Motorways UK"
    },
    {
        "id": "a1b1c1-construction-completion",
        "documentType": "completionCertificate",
        "title": "Completion certificate for construction at M75 J4-5 upgrade",
        "description": "Completion certificate for the construction upgrading motorway␣
↪M75 Junctions 4-5.",
        "url": "https://example.com/Published/a1b1c1-construction-completion.html",
        "datePublished": "2018-12-10T00:00:00Z",
        "format": "text/html",
        "language": "en",
        "accessDetails": "Register for document access.",
        "author": "Motorways UK"
    }
]
```

Identifier

Use of stable official organization identifiers can help join up data between systems.

Organization identifiers should be constructed by collecting an official company (or government body) registration number for the organization, and then finding the org-id.guide list code for the list this identifier is taken from to use in the scheme field.

For example, if identifying a company in Colombia, look up its identifier in the Unified Commercial and Social Registry and use the list code CO-RUE.

Identifier is defined as:

A unique identifier for a party (organization).

This sub-schema is referenced by the following properties:

- *Organization/identifier*
- *Organization/additionalIdentifiers*

Each `Identifier` has the following fields:

Schema

Title	Description	Type	Format	Required
`scheme`		[string]		
Scheme	Organization identifiers should be taken from an existing organization identifier list. The scheme field is used to indicate the list or register from which the identifier is taken. This value should be taken from the Organization Identifier Scheme codelist.			
`id`		string		
ID	The identifier of the organization in the selected scheme.			
`legalName`		[string]		
Legal Name	The legally registered name of the organization.			
`uri`		[string]	uri	
URI	A URI to identify the organization, such as those provided by Open Corporates or some other relevant URI provider. This is not for listing the website of the organization: that can be done through the URL field of the Organization contact point.			

Examples

```
{
    "scheme": "GB-GOR",
    "legalName": "Motorways UK",
    "id": "XX1234",
    "uri": "https://government-organisation.register.gov.uk/records/XX1234"
}
```

```
[
    {
        "scheme": "GB-GOV",
        "legalName": "Motorways UK",
        "id": "ABCDE"
    }
]
```

RelatedProject

`RelatedProject` is defined as:

> A reference to a project related to the same set of infrastructure assets as this project. Generally, related projects either precede or follow on from the current project.

This sub-schema is referenced by the following properties:

- *relatedProjects*

Each `RelatedProject` has the following fields:

Schema

Title	Description	Type	Format	Required
`id`		string		Required
Relationship ID	A local identifier for this relationship, unique within this array.			
`scheme`		string		
Scheme	The identification scheme used by this cross-reference, using the open relatedProjectScheme codelist.			
`identifier`		string		
Identifier	The identifier of the related project. If the scheme is 'oc4ids', this must be an OC4IDS project ID.			
`relationship`		string		
Relationship	The type of relationship, using the open relatedProject codelist.			
`title`		string		
Related project title	The title of the related project. If referencing an OC4IDS project, this should match the value of the `title` field of the related project.			
`uri`		string	uri	
Related project URI	A URI pointing to a machine-readable document or project package containing the identified related project.			

Examples

```
[
    {
        "id": "1",
        "scheme": "oc4ids",
        "identifier": "oc4ids-bu3kcz-m75-junctions-4-to-5-construction",
        "relationship": "construction",
        "title": "Original construction of M75 J4-5"
    }
]
```

Metric

`Metric` is defined as:

> Metrics are used to set out forecast and actual metrics targets for a project: for example, planned and actual physical and financial progress over time.

This sub-schema is referenced by the following properties:

- *forecasts*
- *metrics*

Each `Metric` has the following fields:

Schema

Title	Description	Type	Format	Required
`id`		string		Required
Identifier	An identifier for this metric. In some cases this may be drawn from a codelist of metrics required for this type of contracting process or project, or in other instances may be an arbitrary identifier.			
`title`		[string]		
Title	The title of this metric			
`description`		[string]		
Description	A short description of the metric. This may include short details of measurement methods.			
`observations`		array[Observation]		
Observations	An array of target or actual values for this metric. See *Observation*			

Examples

```
[
    {
        "id": "physicalProgress",
        "title": "Physical progress",
        "observations": [
            {
                "id": "1",
                "measure": "50",
                "unit": {
                    "name": "percent",
                    "id": "P1",
                    "scheme": "UNCEFACT"
                },
                "period": {
                    "startDate": "2018-01-07T00:00:00Z",
                    "endDate": "2018-01-07T00:00:00Z"
```

(continues on next page)

```
            },
            "value": {}
        },
        {
            "id": "2",
            "measure": "75",
            "unit": {
                "name": "percent",
                "id": "P1",
                "scheme": "UNCEFACT"
            },
            "period": {
                "startDate": "2018-04-07T00:00:00Z",
                "endDate": "2018-04-07T00:00:00Z"
            }
        },
        {
            "id": "3",
            "measure": "100",
            "unit": {
                "name": "percent",
                "id": "P1",
                "scheme": "UNCEFACT"
            },
            "period": {
                "startDate": "2018-07-01T00:00:00Z",
                "endDate": "2018-07-01T00:00:00Z"
            }
        }
    ]
    }
]
```

```
[
    {
        "id": "physicalProgress",
        "title": "Physical progress",
        "observations": [
            {
                "id": "1",
                "measure": "50",
                "unit": {
                    "name": "percent",
                    "id": "P1",
                    "scheme": "UNCEFACT"
                },
                "period": {
                    "startDate": "2018-01-07T00:00:00Z",
                    "endDate": "2018-01-07T00:00:00Z"
                },
                "value": {}
            },
```

```
            {
                "id": "2",
                "measure": "75",
                "unit": {
                    "name": "percent",
                    "id": "P1",
                    "scheme": "UNCEFACT"
                },
                "period": {
                    "startDate": "2018-08-07T00:00:00Z",
                    "endDate": "2018-08-07T00:00:00Z"
                }
            },
            {
                "id": "3",
                "measure": "100",
                "unit": {
                    "name": "percent",
                    "id": "P1",
                    "scheme": "UNCEFACT"
                },
                "period": {
                    "startDate": "2018-12-01T00:00:00Z",
                    "endDate": "2018-12-01T00:00:00Z"
                }
            }
        ]
    }
]
```

Observation

Observation is defined as:

> An actual or target observation. Observations should include either a value (for financial metrics) or measure (for other metrics).

This sub-schema is referenced by the following properties:

- *Metric/observations*

Each Observation has the following fields:

Schema

Title	Description	Type	Format	Required
`id`		string		Required
Identifier	A local identifier for this specific observation. This may be an arbitrary identifier, or could be a composite of the metric identifier, and the date and other dimensions of this observation.			
`period`		object		
Period	The period over which this observation is measured. See *Period*			
`value`		object		
Value	For financial metrics, the value of this forecast, target or actual observation. See *Value*			
`measure`		[string, number]		
Measure	For non-financial metrics, the measure of this forecast, target or actual observation. Measures may be provided as free text or numerical values.			
`unit`		object		
Unit	Unit			
`unit/name`		[string]		
Unit name	The name of the unit.			
`unit/scheme`		[string]		
Scheme	The list from which units of measure identifiers are taken. Use of the scheme 'UNCEFACT' for the UN/CEFACT Recommendation 20 list of "Codes for Units of Measure Used in International Trade" is recommended.			
`unit/id`		string		
ID	The identifier from the codelist referenced in the schema property. For example, with UNCEFACT, this is the value of the 'Common Code' column. From this identifier, applications can look-up the human readable name or symbol for this unit of measure.			
`unit/uri`		[string]	uri	
URI	If the scheme used provide a machine-readable URI for this unit of measure, this can be given.			
`dimensions`		object		
Dimensions	Any number of dimensions can be recorded within this object. Dimensions names should follow the camelCase conventions of OCDS.			
`notes`		[string]		
Notes	Any notes on this observation. This may include clarifying information.			

Examples

```
[
    {
        "id": "1",
        "measure": "50",
        "unit": {
            "name": "percent",
            "id": "P1",
            "scheme": "UNCEFACT"
        },
        "period": {
            "startDate": "2018-01-07T00:00:00Z",
            "endDate": "2018-01-07T00:00:00Z"
        },
        "value": {}
    },
    {
        "id": "2",
        "measure": "75",
        "unit": {
            "name": "percent",
            "id": "P1",
            "scheme": "UNCEFACT"
        },
        "period": {
            "startDate": "2018-04-07T00:00:00Z",
            "endDate": "2018-04-07T00:00:00Z"
        }
    },
    {
        "id": "3",
        "measure": "100",
        "unit": {
            "name": "percent",
            "id": "P1",
            "scheme": "UNCEFACT"
        },
        "period": {
            "startDate": "2018-07-01T00:00:00Z",
            "endDate": "2018-07-01T00:00:00Z"
        }
    }
]
```

```
[
    {
        "id": "1",
        "measure": "50",
        "unit": {
            "name": "percent",
            "id": "P1",
            "scheme": "UNCEFACT"
```

```
        },
        "period": {
            "startDate": "2018-01-07T00:00:00Z",
            "endDate": "2018-01-07T00:00:00Z"
        },
        "value": {}
    },
    {
        "id": "2",
        "measure": "75",
        "unit": {
            "name": "percent",
            "id": "P1",
            "scheme": "UNCEFACT"
        },
        "period": {
            "startDate": "2018-08-07T00:00:00Z",
            "endDate": "2018-08-07T00:00:00Z"
        }
    },
    {
        "id": "3",
        "measure": "100",
        "unit": {
            "name": "percent",
            "id": "P1",
            "scheme": "UNCEFACT"
        },
        "period": {
            "startDate": "2018-12-01T00:00:00Z",
            "endDate": "2018-12-01T00:00:00Z"
        }
    }
]
```

Person

Use this object when you need to disclose the details of people associated with, representing or working on behalf of an organization involved in the project.

Person is defined as:

> A natural person.

This sub-schema is referenced by the following properties:

- *Organization/people*

Each Person has the following fields:

Schema

Title	Description	Type	Format	Required
`id`		string		Required
Identifier	A local identifier for this person.			
`name`		string		
Name	The full name of the person.			
`jobTitle`		string		
Job title	The job title of the person (for example, Financial Manager).			

Examples

```
[
    {
        "id": "1",
        "name": "Jane Bloggs",
        "jobTitle": "Chair"
    }
]
```

Transaction

A spending transaction related to a contracting process.

`Transaction` is defined as:

> A spending transaction related to the contracting process. Draws upon the data models of the Fiscal Data Package and the International Aid Transparency Initiative and should be used to cross-reference to more detailed information held using a Fiscal Data Package, IATI file, or to provide enough information to allow a user to manually or automatically cross-reference with some other published source of transactional spending data.

This sub-schema is referenced by the following properties:

- *ContractingProcessSummary/transactions*

Each `Transaction` has the following fields:

Schema

Title	Description	Type	Format	Required
`id`		string		Required
ID	A unique identifier for this transaction. This identifier should be possible to cross-reference against the provided data source. For IATI this is the transaction reference.			
`source`		[string]	uri	
Data source	Used to point either to a corresponding Fiscal Data Package, IATI file, or machine or human-readable source where users can find further information on the budget line item identifiers, or project identifiers, provided here.			
`date`		[string]	date-time	
Date	The date of the transaction			
`value`		object		
Value	The value of the transaction. See *Value*			
`payer`		object		
Payer	An organization reference for the organization from which the funds in this transaction originate. See *OrganizationReference*			
`payee`		object		
Payee	An organization reference for the organization which receives the funds in this transaction. See *OrganizationReference*			
`uri`		[string]	uri	
Linked spending information	A URI pointing directly to a machine-readable record about this spending transaction.			

Examples

```
[
    {
        "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-00001-1",
        "source": "https://openspending.org/motorways-uk-spending/",
        "date": "2017-08-07T00:00:00Z",
        "value": {
            "amount": 1950000,
            "currency": "GBP"
        },
        "payer": {
            "id": "GB-GOR-XX1234",
            "name": "Motorways UK"
        },
        "payee": {
            "name": "Concrete Motorways Construction",
            "id": "GB-COH-33333333"
        },
```

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```
        "uri": "https://openspending.org/motorways-uk-spending/transaction/xyz123"
    }
]
```

1.3.3 Codelist reference

Some schema fields refer to codelists, to limit and standardize the possible values of the fields, in order to promote data interoperability.

Codelists are either be open or closed. **Closed codelists** are intended to be comprehensive; for example, the currency codelist covers all currencies in the world. **Open codelists** are intended to be representative, but not comprehensive.

Publishers must use the codes in the codelists, unless no code is appropriate. If no code is appropriate and the codelist is **open**, then a publisher may use a new code outside those in the codelist. If no code is appropriate and the codelist is **closed**, then a publisher should instead create an issue in the OC4IDS GitHub repository.

Extending open codelists

If you use new codes outside those in an open codelist, please create an issue in the OC4IDS GitHub repository, so that the codes can be considered for inclusion in the codelist.

For more information on open and closed codelists, refer to the Open Contracting Data Standard codelists documentation.

OCDS codelists

OC4IDS reuses some codelists from the Open Contracting Data Standard and its extensions:

- Currency
- Geometry type
- Location gazetteers
- Method
- Organization identifier scheme
- Release tag
- Unit classification scheme

Closed codelists

ContractingProcessStatus

ContractNature

ProjectStatus

Projects with a `status` of 'completed' may be displayed in a list of archived projects.

ProjectType

Open codelists

DocumentType

ModificationType

PartyRole

ProjectSector

RelatedProject

RelatedProjectScheme

classificationScheme

1.3.4 Packaging data

OC4IDS data must be published as part of project package, which acts as a container for data on multiple projects and adds important metadata about the publication. The project package schema describes this container.

You can view an interactive version of the project package schema below (requires JavaScript) or download it here.

Click on schema elements to expand the tree, or use the '+' icon to expand all elements. Use { } to view the underlying schema for any section.

1.3.5 Changelog

[X.X.X] - YYYY-MM-DD

Documentation

- #344 - add implementation models guidance.
- #343 - add Flatten Tool command to implementation guidance.
- #328 - fix reference tables so that "Required" column is correct for arrays (e.g. LinkedRelease.tag is now correctly marked as "Required")
- #355 - use correct normative and non-normative keywords in documentation.
- #362 - add guidance on publishing in your own language.
- #371 - add link to field level mapping template tutorial.
- #370 - improve schema reference documentation and integrate worked example.

Schema

- #355 - use correct normative and non-normative keywords in schema descriptions.
- #361 - clarify project budget description.
- #365 #386 - add description field to budget.
- #367 - add approval date to budget breakdown.
- #368 - clarify contracting processes id description.

Codelists

- #355 - use correct normative and non-normative keywords codelist descriptions.
- #369 - add classification scheme codelist.

Other

- #374 - add pull request template.
- #380 - update links to OC4IDS Kit.

[0.9.3] - 2021-10-07

Documentation

- #210:
    - update the 'Mapping from OCDS' column to reflect the logic used in convert-to-oc4ids.
    - remove references to the PPP profile, reference individual extensions instead.
    - update project identification mapping for sector.
    - replace reference to Budget and projects extension with Projects extension.
    - remove reference to 'publicAuthority' code from OCDS mapping.
- #216 - update CoST IDS & OCDS mapping documentation to separate the OC4IDS to CoST IDS mapping and the OCDS to OC4IDS mapping.
- #217 - remove repeated 'OCDS:' in mapping documentation.
- #220 - add reactive disclosure elements to CoST IDS & OCDS mapping documentation.
- #246 - correct link and wording to Project extension in project identifiers guidance.
- #268, #269 replace 'finalAudit' with 'technicalAuditReport' and 'financialAuditReport' in mapping.
- #278 - add reactive disclosures to worked example.
- #304 - update blank OC4IDS file with schema changes, and add project package.
- #316 - update wording around worked example file, add link to blank.json.
- #260 - improve the clarity of the Getting Started documentation.
- #329 - fix incorrect references to `document.type` in the CoST IDS & OCDS mapping.
- #339 - update link to CoST IDS on mapping page.

- #382 - update email addresses for support.

Schema

- #277 - add `forecasts` and `metrics`, which can be used to publish implementation progress reports.
- #317 - update fields shared with OCDS for PPPs 1.0.0-beta3 and OCDS 1.1.5.
- #264 - add a field and class for natural persons.
- #273 - add `contractingProcesses/summary/transactions`, which can be used to publish disbursement records.
- #284 - restore `classification/uri` field.
- #223 - add stricter validation rules to catch empty arrays, objects and strings.

Codelists

- #317 - update codes shared with OCDS for PPPs 1.0.0-beta3 and OCDS 1.1.5.

documentType codelist

Changed:

- #261 Update description of 'feasibilityStudy' code to include "project".
- #267 Update description of 'completionCertificate' code to include "project".

Added:

- #262 'socialImpact'
- #263 'resettlementPlan'
- #265 'financialAgreement'
- #266 'budgetAmendmentApproval'
- #268 'technicalAuditReport'
- #269 'financialAuditReport'
- #271 'escalationApproval'
- #272 'qualityAssuranceReport'
- #274 'incorporationCertificate'
- #275 'contractAmendment'
- #270 'designReport'
- #273 'paymentCertificate'

Removed:

- #269 'finalAudit' (use 'technicalAuditReport' or 'financialAuditReport')
- #321 'contractSchedule' (use 'contractAnnexe')

[0.9.2] - 2020-06-29

Documentation

- #96 - add guidance on providing project identifiers in OCDS data.

- #120 - add list of registered project identifier prefixes to documentation.

- #124 - clarify guidance on project identifier prefixes.

- #131 - replace 'owner' with 'publicAuthority' in mapping.

- #133 - improve clarity of 'what is a project' in getting started section.

- #136 - add project identifier prefix to example file.

- #143 - update worked example page to describe project package, use non-normative keywords, and edit for clarity.

- #143 - add data user guide page.

- #145 - re-order codelist reference page, refer to OCDS and extension documentation for codelists that are shared.

- #146 - add 'publicAuthority' role to example file.

- #218 - add link to CoST guidance note on OGP commitments.

- #211 - update description of 'publicAuthority' role.

Schema

Project package schema

- #143 - update URL in `publicationPolicy` description to reference the data user guide page.

- #182 - update validation properties to enforce minimum length on required string fields and minimum properties on required objects.

OC4IDS project schema

- #127 - remove the requirement that linked OCDS releases must be provided in release packages containing only one release. Remove recommendation that OCDS releases are cached from schema and add guidance on caching releases from unreliable sources to implementation guidance.

- #132 - add a publicAuthority organization reference field.

- #139 - update properties of fields in common with OCDS to version 1.1.4.

- #140 - update the description of `project/period` to clarify that this field should be used to provide the planned start and end dates during the preparation phase, for comparison with the actual completion date for the project.

- #141 - clarify that `contractingProcesses/summary/description` is for the contract's *initial* scope of work.

- #141 - remove incorrect guidance about other fields from `contractingProcesses/summary/modifications`.

- #153 - add project/relatedProjects array.

- #154 - add `.requestDate` field to `project/budget` to record the date of the budget request for the project.

- #156 - fix the description of `completion/endDateDetails` to refer to the end date of the *project*, not that of the *contract*.

- #157 - fix spelling and grammar issues.
- #158 - make `contractingProcesses/releases/tag` an array, not a string (bugfix).
- #160 - describe the components of `project/id`, and link to guidance.
- #161 - removed `contractingProcesses/summary/ocid` because it duplicates `contractingProcesses/id`.
- #182 - update validation properties to enforce unique items in arrays and minimum length on required string fields.

Codelists

- #139 - update codelists in common with OCDS to version 1.1.4.
- #152 - add 'expansion' code to projectType codelist.

[0.9.1] - 2019-06-17

Changed

- Add changelog.
- Update ocds-babel to 0.1.0.

Fixed

- Correct schema URLs in schema files.

[0.9.0-beta] - 2019-03-19

This changelog entry indicates notable changes since the alpha-2 development release of OC4IDS, it is not intended to be a complete list of changes.

In addition to the specific changes to schema and codelists noted below:

- Various refinements and clarifications were made to schema and codelist descriptions.
- Guidance on mapping values from OCDS was moved from the schema to the IDS and OCDS mapping section of the documentation.
- Documentation was expanded and restructured.

Packaging

- Add project package schema. OC4IDS data must be published as part of a project package.

Schema updates

- `sector` - use projectSector open codelist.
- `ContractingProcess` - add required `id` field.
- `LinkedRelease` - make `id` required.
- `variations` - rename to `modifications`.
- `Location` - add required `id` field.

New codelists

- `projectSector` codelist - add codelist for project sector.

Codelist updates

- projectStatus codelist - replace 'construction' with 'implementation'.
- variationType codelist - rename to modificationType.
- partyRole codelist - add OC4IDS codes mentioned in schema and mapping:
    - funder
    - administrativeEntity
- partyRole codelist - add codes from OCDS partyRole codelist:
    - buyer
    - procuringEntity
    - supplier
    - tenderer
- partyRole codelist - remove PPP-specific codes:
    - bidder
    - qualifiedBidder
    - preferredBidder
    - privateParty
    - leadBank
    - lender
    - equityInvestor
    - consortiaMember
    - interestedParty
    - grantor
    - disqualifiedBidder
    - socialWitness
    - otherWitness

- **–** notary
- documentType codelist - remove PPP-specific codes:
  - **–** financeAdditionality
  - **–** pppModeRationale
  - **–** riskComparison
  - **–** discountRate
  - **–** equityTransferCaps
  - **–** financeArrangements
  - **–** guaranteeReports
  - **–** grants
  - **–** servicePayments
  - **–** landTransfer
  - **–** assetTransfer
  - **–** revenueShare
  - **–** otherGovernmentSupport
  - **–** tariffMethod
  - **–** tariffReview
  - **–** tariffs
  - **–** tariffIllustration
  - **–** handover
  - **–** financialStatement
- documentType codelist - add codes from OCDS documentType codelist:
  - **–** contractNotice
  - **–** completionCertificate
  - **–** procurementPlan
  - **–** biddingDocuments
  - **–** contractArrangements
  - **–** physicalProgressReport
  - **–** financialProgressReport
  - **–** hearingNotice
  - **–** marketStudies
  - **–** eligibilityCriteria
  - **–** clarifications
  - **–** assetAndLiabilityAssessment
  - **–** winningBid
  - **–** complaints

- – contractAnnexe

- – subContract

- – projectPlan

- – billOfQuantity

- – bidders

- – conflictOfInterest

- – debarments

- – illustration

- – submissionDocuments

- – contractSummary

- – cancellationDetails

1.3.6 Registered project prefixes

The list below shows all registered prefixes. You can download the list as CSV.

1.3.7 Data validation

OC4IDS uses a permissive schema. It does not enforce strong technical validation requirements on data, other than some structural rules and data type rules (dates, numbers and strings).

The fact that data validates against the schema cannot be used to make any judgment about the quality of that data.

1.3.8 Extending the schema

The schema does not restrict the use of additional objects or fields. As a result, publishers of data are free to add extra details to their data.

No formal extensions mechanism currently exists for OC4IDS. However, the extensions mechanism from the Open Contracting Data Standard should be used as a reference model if such a mechanism is required in the future.

1.4 Implementation guidance

1.4.1 Project identifiers

A project identifier is a unique identifier for an infrastructure project. Every project in OC4IDS has a project identifier in the `id` field.

Project identifiers can be used to join up data published at different times or from different systems; for example, including a project identifier in contracting data makes it possible to join up data on the design, construction and supervision contracts within a single infrastructure project.

Local project identifiers in contracting data

A common need is to access data about the contracting processes related to an infrastructure project. When contracting systems use consistent identifiers to refer to infrastructure projects, this becomes possible. An example use case is automatically checking which projects have related contracting data, and then manually filtering projects for further scrutiny, monitoring or data collection.

Project identifiers in contracting data ought to be locally unique; this means that across all contracting data from a particular system or country, each project identifier refers to exactly one infrastructure project.

There are different approaches to including project identifiers in contracting data, with the best solution depending on the context of an implementation:

- **Include a free-text field for project identifiers in procurement systems** and work with officials entering procurement information to make sure this is populated according to a defined pattern.

  Free-text entry of project identifiers can lead to data quality issues; for example, project identifiers can be mistyped or two groups can accidentally choose to use the same identifier for different projects.

  However, this approach allows some data quality checks to be run; for example, checking that all the contracting processes over a certain value from a given agency have a project identifier, and that the identifier matches a defined pattern or a local list of project identifiers.

  This approach also enables the joining up of data on multiple contracting processes relating to a single infrastructure project.

- **Establish a national project register managed by a central agency and integrated into procurement systems.** In this model, officials entering procurement information would look up and use the project's identifier from the national register. If the project is not yet in the register, they would request its addition.

  This approach supports more comprehensive and effective data quality checks; for example, project identifiers entered into procurement systems can be immediately checked against the project register to prevent errors in data entry ("validation at source").

  A central register can ensure that project identifiers are locally unique, and more robustly supports use cases like identifying projects lacking related contracts.

  However, this approach requires political will and technical capacity to establish the central register and integrate it into procurement systems, and it requires an appropriate central actor to manage it.

Project identifiers in OCDS

In OCDS, the identifier for the individual infrastructure project to which a contracting process is related ought to be disclosed using the `planning/project/id` field, introduced in the Project extension.

The `planning/budget/projectID` field in OCDS ought **not** be used to disclose the identifier for an individual infrastructure project. This field is used to disclose the identifier for a project in the national budget to which the contracting process is related. Since projects in the national budget might include many individual infrastructure projects, it is necessary to disclose these identifiers separately.

Project identifier prefixes

Project identifiers in OC4IDS need to be globally unique; this means that, across all the data of all OC4IDS publishers, each project identifier refers to exactly one infrastructure project.

If local project identifiers are available in existing systems or data, these ought to be re-used to create globally unique project identifiers for use in OC4IDS. Otherwise, if local project identifiers are not available, publishers are allowed to assign local identifiers to projects in the new systems used to generate OC4IDS data.

To make local project identifiers globally unique for use in OC4IDS, a publisher requests a project identifier prefix from the OC4IDS Helpdesk. The publisher needs to then use the assigned prefix in all its project identifiers, according to following structure: `[project identifier prefix]-[local project identifier]`.

For example: CoST Honduras requests a project identifier prefix from the OC4IDS Helpdesk. The OC4IDS Helpdesk assigns the randomly-generated prefix `oc4ids-qu8r7p`. CoST Honduras then creates globally unique project identifiers, by combining its assigned prefix with each local project identifier from its SISOCS system.

Project identifier prefixes are typically unique to each publisher. However, multiple publishers in the same jurisdiction can collaboratively decide to use the same project identifier prefix: for example, if multiple agencies are independently responsible for different projects. As such, the prefix serves to identify a series of infrastructure projects (to which many publishers can contribute), rather than to identify one publisher.

Request a project identifier prefix

To request a project identifier prefix, please e-mail data@open-contracting.org with the name of your organization and a brief description of your OC4IDS implementation.

You can *view the list of registered prefixes*.

1.4.2 Publishing data from an infrastructure transparency portal

OC4IDS can be used to publish standardized open data on infrastructure projects where information is already collected and disclosed through infrastructure transparency portals, whether by CoST Multi-Stakeholder Groups, government agencies or civil society organizations.

Publishing standardized open data reduces barriers to use of data and supports the development of reusable tools and methodologies for working with data on infrastructure projects.

If you also collect detailed data on contracting processes, this can be published using the Open Contracting Data Standard (OCDS).

Linking to related information

Infrastructure transparency portal creators ought to consider what other types of information might be important to citizens, in addition to the in depth scrutiny related information in OC4IDS.

For example, Highways England provides links to congestion and traffic restriction information alongside information on roads projects.

Getting started

Some of the following steps might require support from a technical expert. You can also contact the OC4IDS Helpdesk (data@open-contracting.org) for guidance.

(1) Make a commitment

Consider making or advocating for a public commitment to publish standardized open data using OC4IDS and OCDS.

Commitments are important to help align implementation with the goals of publishing open data and to help overcome technical, political or bureaucratic barriers to publication.

Applications to join CoST can be used to make a commitment or if your country is a member of the Open Government Partnership, your National Action Plan is another great place to start.

Refer to the OCDS implementation journey for information and resources about making commitments related to OCDS. Refer to the CoST and OGP guidance note for guidance on making OGP commitments related to CoST.

(2a) Map project-level data and summary contracting process data

Map existing data structures to *OC4IDS*.

Tip: The OC4IDS Field-Level Mapping Template can be used to document your mapping.

To learn how to use the mapping template, see the tutorial.

Your mapping might identify:

- **Gaps in your data** where data in OC4IDS is not currently collected or disclosed in your system. Use OC4IDS as a guide to the information that is important to users and consider whether your system and business processes could be updated to collect and publish additional information.

- **Gaps in OC4IDS** where data is collected by your system but doesn't map to OC4IDS. Rather than being excluded from your publication, such information ought to be included as additional fields in your data. Refer to *extending the schema* for information on including additional fields in your data.

(2b) Map detailed contracting process data

If you collect detailed data on contracting processes, refer to the OCDS implementation journey for information and resources about mapping and publishing your contracting data using OCDS.

Include an identifier for the infrastructure project that each contracting process relates to in your OCDS data, following the guidance on *project identifiers in OCDS*.

(3) Build your data, systems and processes

Create an OC4IDS JSON file for each project your system has information on and use the OC4IDS Data Review Tool to check that the files are structurally correct against OC4IDS.

Tip: You can use a blank example OC4IDS JSON file to get started.

If you are also publishing contracting data using OCDS, create an OCDS release each time the data about a contracting process changes and use the OCDS Data Review Tool to check your OCDS releases.

Make sure you have systems and/or business processes in place to keep the data you produce up to date.

(4) Publish your data

Publish your OC4IDS JSON fields (as either static files or via an API) at a stable URL, such as:

> `https://{your-website}/opendata/projects/{project-id}.json`

If you are also publishing contracting data using OCDS, publish each new release of data as a JSON file at a stable URL such as:

> `https://{your-website}/opendata/contracting/{ocid}/{release-id}.json`

Make sure your project-level files include links in the `contractingProcesses/releases` section to each related OCDS file.

To make your data easier to access, consider providing:

- A regularly updated bulk file of all your data for download
- Flattened (spreadsheet or CSV) representations of your data
- A page on your website with details of how users can access your data

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Tip: You can use Flatten Tool to convert OC4IDS data between JSON and CSV/Excel formats. For example, the following command converts the example project package to Excel format:

```
flatten-tool flatten -f xlsx example.json --root-id=id --root-list-path=projects
```

Refer to the OCDS documentation for more information on providing data in multiple formats.

1.4.3 Implementation models

OC4IDS implementation involves combining data on infrastructure projects and contracting processes. This guidance describes some examples of implementation models used by OC4IDS publishers. It is not an exhaustive list, but it can be used to inform your implementation.

Sources of data can include infrastructure transparency portals, procurement systems and project administration systems. OC4IDS implementation can also involve using contracting data published in OCDS format.

In this guidance we discuss options for the collection of data, the flow of data between systems and the publication of data. For more information about the design of the system architecture to support this process, see the System Architectures guidance in the OCDS documentation.

Standalone infrastructure transparency portal
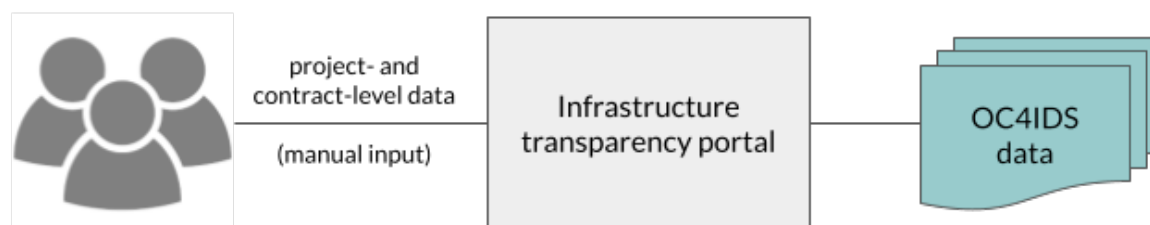
In this model, procuring entities enter project and contract level data directly into an infrastructure transparency portal. The portal publishes project data and summary contracting process data in OC4IDS format. CoST Honduras uses this model in SISOCS, as does CoST West Lombok in INTRAS.

The main benefit of this approach is that it is relatively simple because it does not involve integrating data from different systems. The downside of this approach is that it can increase the data entry burden on procuring entities who might also need to enter contracting process data into a separate procurement system.

Integrated infrastructure transparency portal and procurement system
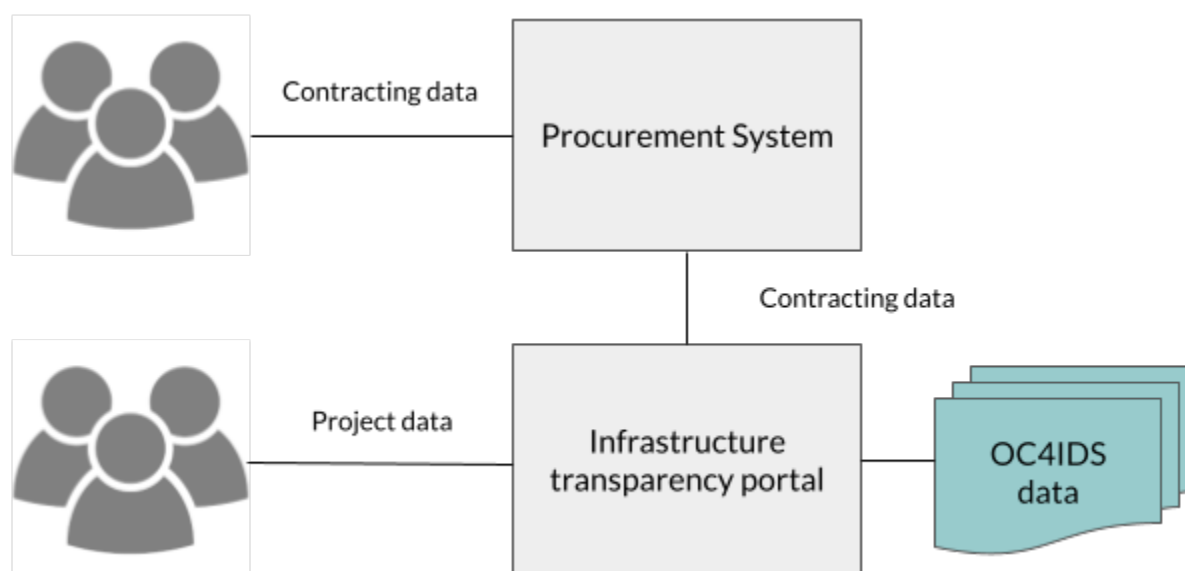
In this model, procuring entities enter project data directly into an infrastructure transparency portal, whilst contracting process data is imported from an existing procurement system. The portal then publishes project data and summary contracting process data in OC4IDS format.

For each project, the infrastructure transparency portal needs to join up the project data entered by the procuring entity with contracting data imported from the procurement system. If the contracting data includes project identifiers, this process can be automated. Otherwise, procuring entities need to manually associate contracts with projects.

CoST Ukraine uses this model in its infrastructure transparency portal, which imports data from Prozorro, the national procurement system. Project identifiers are not captured in Prozorro so procuring entities manually match contracts to projects.

The main benefit of this approach is reducing the data entry burden on procuring entities, who need only enter contracting data in one system. When the data from the procurement system includes project identifiers, the burden is further reduced since the transparency portal can match contracts to projects without manual intervention. The downsides of this approach are increased complexity of the transparency portal and the potential need for development work on the procurement system to enable access to its data.

When the procurement system publishes OCDS data, there are two further benefits:

- OC4IDS Kit's convert-from-ocds command can be used to generate OC4IDS data using the OCDS data as an input, reducing the amount of software development needed.

- The published OC4IDS data can be linked to the OCDS data from the procurement system, allowing users to dig deeper into detailed data about the contracting processes related to each project.
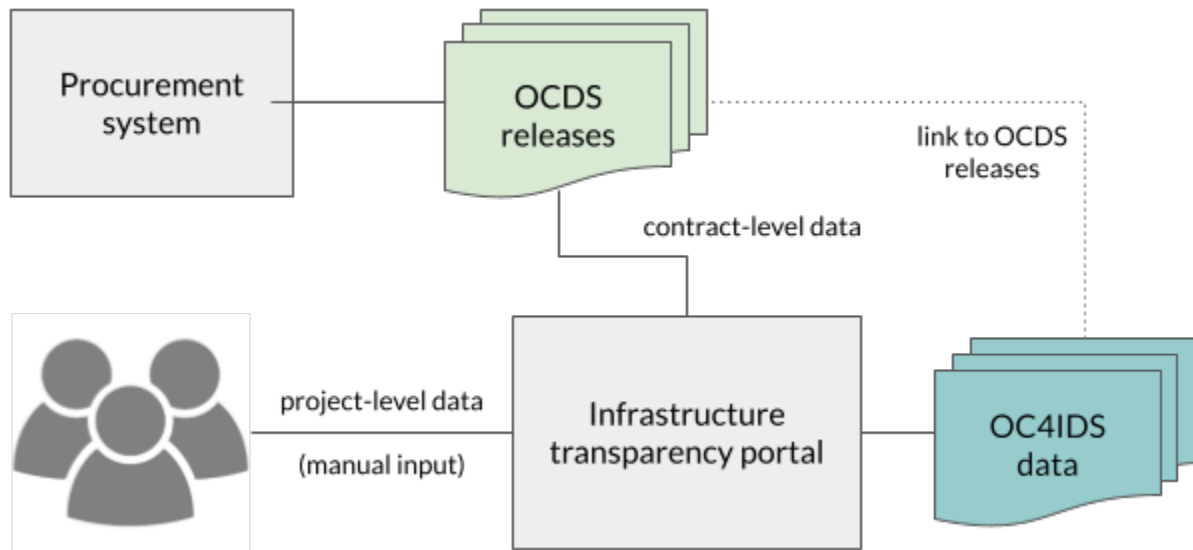
Nuevo León's Infraestructura Abierta platform implements a similar model:

- Internal systems collect, combine and publish project and contracting data using OC4IDS and OCDS.

- The Infraestructura Abierta platform consumes the OC4IDS and OCDS data and provides an interface for users to explore and analyze the data.

For more information on Nuevo León's implementation, read the Technical case study.

Standalone procurement system
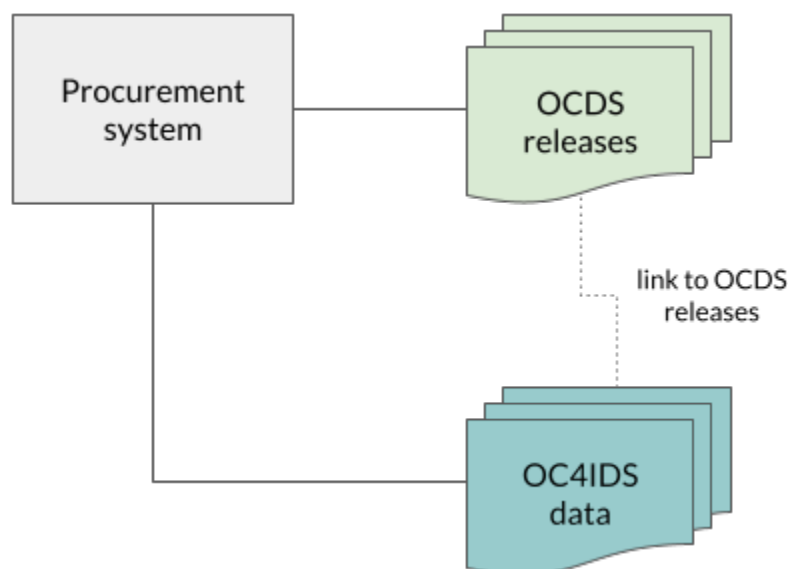
In this model, rather than implementing a separate infrastructure transparency portal, an existing procurement system is extended to collect project data. Procuring entities enter project data and contracting data directly into the procurement system and associate contracts with projects. The system publishes project data and summary contracting data in OC4IDS format and detailed contracting data in OCDS format. The OC4IDS data meets the needs of users with an interest in infrastructure projects and the OCDS data meets the needs of users with an interest in all types of contracting process.

Uganda's Public Procurement and Disposal of Public Assets Authority uses this model in its Government Procurement Portal.

The main benefit of this model is that it does not require the development of a separate infrastructure transparency portal. The downside of this model is that it might involve significant changes to legacy procurement systems.

1.4.4 Using data from procurement systems for infrastructure monitoring

An increasing number of procurement portals now publish data using the Open Contracting Data Standard (OCDS). When OCDS is implemented in full, then:

- Each contracting process is given a unique identifier (`ocid`);

- Every update to that process, from planning through to implementation, ought to be published under the same `ocid`, and in a structured open data format;

- It ought to be possible to download bulk data in OCDS format, or access this structured data via an API.

Even when an OCDS publisher does not provide data for every stage of the contracting process, it is still possible to use OCDS data to:

- Discover contracts related to infrastructure projects;

- Track these contracting processes, including changes to tenders, details of suppliers selected, and, in some cases, details of contract modifications.

Getting started

The following steps might require support from a technical expert. You can also contact the OC4IDS Helpdesk (data@open-contracting.org) for guidance.

(1) Evaluate the Open Contracting Data

Check that the data you plan to analyze is in OCDS format

Tip: You can use the OCDS Data Review Tool to check whether your data is in the correct format

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Check which stages of the contracting process the data covers.

Check whether the publisher keeps a change history (multiple releases for each contracting process), or whether as a user of the data you will need to keep the change history.

(2) Identify how you will query the data

Some OCDS publishers provide an API that can be used to query data. Others provide access to bulk data that you can download into your own tools for querying.

Tip: If you are working with OCDS data from an unreliable source, consider caching a copy of the OCDS releases that relate to the infrastructure projects you are monitoring, and consider linking to the copies from your OC4IDS data in order to ensure they are available to users.

Tip: OCDS Kingfisher is an open source tool that can load OCDS data into a PostgreSQL database. It includes scrapers for many known OCDS data sources

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(3) Develop a search strategy to discover infrastructure projects

Ideally, the procurement data source will include some sort of project or budget identifier fields that relate to a register of infrastructure projects.

Tip: If the procurement data you are working with is in OCDS format, refer to the guidance on *project identifiers in OCDS* for more information on where to find identifiers for projects.

However, where this is not the case, it might be possible to search for tenders with a particular set of item classifications, or from a particular buyer.

This might be possible by downloading and filtering spreadsheets of the data, or might involve queries written against your chosen data storage tool.

Worked example

Using the UK Contracts Finder dataset in OCDS format, and OCDS Kingfisher, we can use the following query to fetch contracting processes classified under the 'Architectural, construction, engineering and inspection services' hierarchy of the EU Common Procurement Vocabulary.

```sql
-- The following query runs against a filtered set of data in Kingfisher.
SELECT
    -- The 'data' field contains the JSON representation of a contracting process. The
→data -> 'object' ->> 'value'
    -- syntax is used to navigate this structure and select values. data -> 'tender' ->
→'tenderPeriod' ->> 'endDate'
    -- for example is analogous to the JSON path tender/tenderPeriod/endDate
    data,
    data->'buyer'->>'name' as buyer,
    data->'tender'->'tenderPeriod'->>'endDate' as tenderEndDate,
    EXTRACT(YEAR from cast(data->'tender'->'tenderPeriod'->>'endDate' as timestamp)) as
→tenderYear,
    data->'tender'->>'title' as title,
    data->'tender'->'value'->>'currency' as currency,
    data->'tender'->'value'->>'amount' as value
-- We use a sub-query in order to select only contracting processes where there is at
→least one tender/item with a
-- particular classification.
FROM (
    SELECT DISTINCT data from data
    -- Kingfisher stores data as JSON blobs (jsonb). This expands the items array into a
→table we can join against.
    LEFT JOIN LATERAL jsonb_array_elements(data->'tender'->'items') items on TRUE
    -- All 'Architectural, construction, engineering and inspection services' have CPV
→codes starting with 71
    WHERE items->'classification'->>'id' LIKE '71%'
 ) data
-- We sort by value (highest first). We cast values from the JSON before sorting.
ORDER BY cast(data -> 'tender' -> 'value' ->> 'amount' as float) DESC;
```

This returns over 11,000 procurement processes related to infrastructure, covering frameworks and procurements, with a value of up to £25bn a year. These processes include design work, construction and monitoring, and each needs to be reviewed to identify if it ought to be subject to monitoring.

(4) Populate project-level data

If your analysis of OCDS data reveals infrastructure projects to monitor, you can:

- Use the information from a contracting process data to start populating a **project-level disclosure**;

- Search for **related contracts** in order to link any other design, construction or monitoring contracts to this project;

Tip: When searching for related contracts, you might be looking for contracts from the same buyer, mentioning similar words or localities.

You might not be able to fill all the project-level details from the contracts, and might need to undertake additional research to find:

- The project owner and name

- The full scope of the project

- The total project budget and cost estimates

- Any environmental impact or land and settlement impact studies that have been undertaken

---

Tip: You can use a blank example OC4IDS JSON file to get started.

---

(5) Monitoring contracting process updates

When a publisher is using OCDS correctly, and is providing updates on a contracting process under the same `ocid`, you ought to be able to regularly fetch the latest data for each contracting process you are monitoring, and to compare it with the existing data you have, looking for changes.

Keep a copy each time the data changes, and if you see modifications to:

- Price
- Duration
- Scope

check whether an adequate explanation has been given for these.

You can use OC4IDS to record each time a change is detected, and the reasons that are given for the change.

(6) Add project completion data

When there is evidence that a project has reached completion, it is important to further update the **project-level disclosure**.

If the OCDS data includes implementation data, including transactions or final spending information, then it might be possible to compare the total sum of all contract spending against the original anticipated contract spend, and overall project budget. It might also be possible to compare final contract delivery dates with originally planned dates. This can be used to identify possible modifications that are in need to explanation.

In other cases, you might need to identify other data sources (such as treasury or public spending data) that you can draw upon to check whether a project spend was as anticipated or not.

Tools and platform

You can use OCDS data as part of a manual monitoring process, or you can integrate OCDS into a comprehensive transparency portal.

Tools to help you with manual monitoring include:

- OCDS Kingfisher - a framework for regularly fetching, storing and querying OCDS data.
- OCDS Merge - a library to combine multiple releases of OCDS data into a summary (compiledRelease), and to identify changes over time (versionedRelease).
- OCDS Show - a flexible framework for presenting templated views of OCDS data. Given a merged OCDS record, OCDS Show can highlight change over time.

When building an integrated tool that integrates OCDS data into infrastructure project monitoring:

- The *OC4IDS* provides a common data structure for recording project-level information;
- The *CoST IDS and OCDS Mapping* provides guidance on how to use OCDS data to populate project-level and contracting process summary data.

1.4.5 Assessing compliance with the CoST IDS

The CoST Infrastructure Data Standard (IDS) is a framework for disclosure which is adapted by CoST national programmes to meet their local needs. This section sets out how to use **OC4IDS** and **OCDS** to assess coverage of published data against the IDS. For example, to monitor which elements of IDS are being supplied and whether they are available for all projects or only some.

Note: It is not possible to fully automate checks of whether disclosures from a particular publisher, or disclosures about a particular project, meet the requirements of the CoST IDS. For example, a human check might be needed to determine whether documents linked to from the data contain the necessary information.

Getting started

The following steps might require support from a technical expert. You can also contact the OC4IDS Helpdesk (data@open-contracting.org) for guidance.

(1) Check your data formats

First, check that the disclosures you want to analyze are in the correct format. If they are not in the correct format, you will need to convert the data.

Project level data

Check whether the project-level data is published using *OC4IDS*

Tip: You can use the OC4IDS Data Review Tool to check that whether your data is in the correct format.

If the data isn't published using OC4IDS, use the OC4IDS Field-Level Mapping Template to map the data to the specification and create an OC4IDS JSON file for each project.

Tip: You can use a blank example OC4IDS JSON file to get started.

Contracting data

Check whether the contracting data is published using OCDS.

Tip: You can use the OCDS Data Review Tool to check that whether your data is published in OCDS format.

If the contracting data is published using OCDS then use it to populate the contracting processes section of the project-level data, following the guidance on *using contracting data to understand infrastructure projects*.

If the data isn't published using OCDS, use the OC4IDS Field-Level Mapping Template to map the data to the *contracting processes* section of OC4IDS and add the data to the OC4IDS JSON file for each project.

---

(2) Check which elements of IDS are disclosed

Use the *CoST IDS Mapping* to construct queries to determine which elements of the IDS are provided in the data.

For example, the CoST IDS mapping describes how the project name element of the IDS ought to be disclosed:

> Project-Level: Publish as `title`

Based on this description, the following pseudo code checks a folder containing OC4IDS JSON files to count the number of projects in which the project name is disclosed:

```
for each json file in folder
  load json
  if top-level "title" field exists in json and its value is not an empty string
    increment project name count by 1
```

1.4.6 Data user guide

Publishing OC4IDS involves making choices about what projects, data and documents to include and/or exclude, and how to map existing data elements to the fields in OC4IDS.

In order for users to interpret data correctly and make effective use of it, it's important for publishers to describe these local decisions and to provide guidance to data users that includes:

- the purpose of publication
- how the data is generated
- the data's scope and format
- how the data can be reused
- how the publisher can be contacted

Publishers ought to link to this data user guide from the project package's `publicationPolicy` field.

For more information, please refer to the OCDS publication policy guidance. For assistance in drafting a data user guide, please refer to the OCDS publication policy template.

1.4.7 Examples

This page provides examples to help you understand and implement OC4IDS. There are two examples:

Worked example

The worked example is a JSON file that conforms to the *project package schema*. It contains a single project that conforms to the *project schema*. You can view the complete worked example below or download the JSON file. You can also view excerpts from the worked example alongside each sub-schema in the *schema reference documentation*.

The worked example describes a fictional infrastructure project to upgrade a motorway in the UK with three related contracting processes. An example value is provided for each field in the schema, including:

- `forecasts` and `metrics` that describe planned and actual physical progress
- `modifications` that describe changes to the duration, scope and value of contracting processes
- `completion` data, describing the final end date, value and scope of the project.

```
{
    "version": "0.9",
    "uri": "https://standard.open-contracting.org/infrastructure/0.9/en/_static/example.
→json",
    "publishedDate": "2018-12-10T15:53:00Z",
    "publisher": {
        "name": "Open Data Services Co-operative Limited",
        "scheme": "GB-COH",
        "uid": "9506232",
        "uri": "http://data.companieshouse.gov.uk/doc/company/09506232"
    },
    "license": "http://opendatacommons.org/licenses/pddl/1.0/",
    "publicationPolicy": "https://standard.open-contracting.org/1.1/en/implementation/
→publication_policy/",
    "projects": [
        {
            "id": "oc4ids-bu3kcz-m75-junctions-4-to-5-smart-motorway",
            "updated": "2018-12-10T15:53:00Z",
            "title": "M75 Junctions 4 to 5 upgrade smart motorway",
            "description": "Upgrading the 5km stretch of the M75 near Birmingham Airport,
→ between junction 4 near Patcham and junction 5 at Windlesham, to an all-lane running
→smart motorway.",
            "status": "completed",
            "period": {
                "startDate": "2016-01-01T00:00:00Z",
                "endDate": "2018-12-10T00:00:00Z",
                "durationInDays": 1074
            },
            "sector": [
                "transport",
                "transport.road"
            ],
            "additionalClassifications": [
                {
                    "scheme": "COFOG",
                    "id": "04.5.1",
                    "description": "Road transport (CS)"
                }
            ],
            "type": "expansion",
            "purpose": "To help support local economic growth and maintain mobility.",
            "relatedProjects": [
                {
                    "id": "1",
                    "scheme": "oc4ids",
                    "identifier": "oc4ids-bu3kcz-m75-junctions-4-to-5-construction",
                    "relationship": "construction",
                    "title": "Original construction of M75 J4-5"
                }
            ],
            "assetLifetime": {
                "startDate": "2018-07-01T00:00:00Z",
                "endDate": "2040-07-01T00:00:00Z",
```

(continues on next page)

```
            "durationInDays": 8027
        },
        "locations": [
            {
                "id": "001",
                "description": "M75 J4 Patcham Interchange",
                "geometry": {
                    "type": "Point",
                    "coordinates": [
                        52.2571843,
                        -0.1163333
                    ]
                },
                "gazetteer": {
                    "scheme": "GEONAMES",
                    "identifiers": [
                        "2657507"
                    ]
                },
                "address": {
                    "streetAddress": "Patcham Interchange, New Road",
                    "locality": "Patcham",
                    "region": "Westshire",
                    "postalCode": "WS20 5TV",
                    "countryName": "United Kingdom"
                },
                "uri": "https://www.openstreetmap.org/node/202995"
            },
            {
                "id": "002",
                "description": "M75 J5 Windlesham interchange",
                "geometry": {
                    "type": "Point",
                    "coordinates": [
                        52.1373584,
                        -0.1198955
                    ]
                },
                "gazetteer": {
                    "scheme": "OSMN",
                    "identifiers": [
                        "https://www.openstreetmap.org/node/26571091"
                    ]
                },
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                    "region": "Westshire",
                    "postalCode": "WS21 6RZ",
                    "countryName": "United Kingdom"
                },
                "uri": "https://www.openstreetmap.org/node/1638915385"
```

```
                }
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            "description": "Budget allocation for Motorways UK, aligned with the␣
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            "amount": {
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                "currency": "GBP"
            },
            "requestDate": "2015-05-30T00:00:00Z",
            "approvalDate": "2015-06-24T00:00:00Z",
            "budgetBreakdown": [
                {
                    "id": "2016",
                    "description": "2016 budget allocation",
                    "amount": {
                        "amount": 10000000,
                        "currency": "GBP"
                    },
                    "period": {
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                        "endDate": "2016-12-31T00:00:00Z"
                    },
                    "sourceParty": {
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                        "id": "GB-GOR-XX1234"
                    }
                },
                {
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                    "description": "2017 budget allocation",
                    "amount": {
                        "amount": 20000000,
                        "currency": "GBP"
                    },
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                        "endDate": "2017-12-31T00:00:00Z"
                    },
                    "sourceParty": {
                        "name": "Motorways UK",
                        "id": "GB-GOR-XX1234"
                    }
                },
                {
                    "id": "2018",
                    "description": "2018 budget allocation",
                    "amount": {
                        "amount": 10000000,
                        "currency": "GBP"
                    },
                    "period": {
```

```
                        "startDate": "2018-01-01T00:00:00Z",
                        "endDate": "2018-12-31T00:00:00Z"
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                    "sourceParty": {
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                        "id": "GB-GOR-XX1234"
                    }
                }
            ]
        },
        "parties": [
            {
                "name": "Motorways UK",
                "id": "GB-GOR-XX1234",
                "identifier": {
                    "scheme": "GB-GOR",
                    "legalName": "Motorways UK",
                    "id": "XX1234",
                    "uri": "https://government-organisation.register.gov.uk/records/
→XX1234"
                },
                "additionalIdentifiers": [
                    {
                        "scheme": "GB-GOV",
                        "legalName": "Motorways UK",
                        "id": "ABCDE"
                    }
                ],
                "address": {
                    "postalCode": "LL55 4NY",
                    "countryName": "United Kingdom",
                    "streetAddress": "8 Mountain Walk",
                    "region": "Westshire",
                    "locality": "Patcham"
                },
                "contactPoint": {
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                    "email": "EX12345@motorwaysuk.gov.uk",
                    "telephone": "+44 0123 456 7890",
                    "faxNumber": "+44 0123 456 7891"
                },
                "roles": [
                    "procuringEntity",
                    "buyer",
                    "publicAuthority",
                    "funder"
                ],
                "people": [
                    {
                        "id": "1",
                        "name": "Jane Bloggs",
                        "jobTitle": "Chair"
```

```
                }
            ]
        },
        {
            "name": "A1 Expert Smart Moto Design",
            "id": "GB-COH-11111111",
            "identifier": {
                "scheme": "GB-COH",
                "id": "11111111",
                "legalName": "A1 Expert Smart Moto Design Ltd",
                "uri": "https://beta.companieshouse.gov.uk/company/11111111"
            },
            "address": {
                "streetAddress": "Farm Grove, Prince Road",
                "locality": "Patcham",
                "region": "Westshire",
                "postalCode": "WS18 5BW",
                "countryName": "United Kingdom"
            },
            "contactPoint": {
                "name": "Kim Designer",
                "email": "kim.designerd@a1expertsmart.com",
                "telephone": "+44 0123 456 7890",
                "url": "https://www.example.com"
            },
            "roles": [
                "supplier",
                "tenderer"
            ]
        },
        {
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            "id": "GB-COH-12345678",
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                "id": "12345678",
                "legalName": "Motorway Design Services PLC",
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                "locality": "Mareham",
                "region": "Eastshire",
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                "countryName": "United Kingdom"
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            ]
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```

```
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                "legalName": "Expert Motorway Supervisors Ltd",
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                "locality": "London",
                "region": "London",
                "postalCode": "SE1 1EZ",
                "countryName": "United Kingdom"
            },
            "contactPoint": {
                "name": "Supervisor Manager",
                "email": "supervisor.manager@example.com",
                "telephone": "+44 0123 456 7890",
                "faxNumber": "+44 0123 456 7891",
                "url": "https://www.example.com"
            },
            "roles": [
                "supplier",
                "tenderer"
            ]
        },
        {
            "name": "Concrete Motorways Construction",
            "id": "GB-COH-33333333",
            "identifier": {
                "scheme": "GB-COH",
                "id": "33333333",
                "legalName": "Concrete Motorways Construction Ltd",
                "uri": "https://beta.companieshouse.gov.uk/company/33333333"
            },
            "address": {
                "streetAddress": "5 Example Grove",
                "locality": "London",
                "region": "London",
                "postalCode": "SW1A 1AA",
                "countryName": "United Kingdom"
            },
            "contactPoint": {
                "name": "Construction Manager",
                "email": "construction.example@example.com",
                "telephone": "+44 0123 456 7890",
                "faxNumber": "+44 0123 456 7891",
                "url": "https://www.example.com"
            },
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                "tenderer"
```

```
                ]
            },
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                    "legalName": "Motorways Administrator UK",
                    "id": "XX9876",
                    "uri": "https://government-organisation.register.gov.uk/records/
→XX9876"
                },
                "address": {
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                    "countryName": "United Kingdom",
                    "streetAddress": "High Street, Arundel",
                    "region": "West Sussex"
                },
                "contactPoint": {
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                    "email": "EX6789@motorways-administration-uk.gov.uk",
                    "telephone": "+44 0678 456 7890",
                    "faxNumber": "+44 0678 456 7891"
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                ],
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                    {
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                        "name": "Elstra Lovelace",
                        "jobTitle": "Commercial Contract Officer"
                    }
                ]
            }
        ],
        "publicAuthority": {
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            "id": "GB-GOR-XX1234"
        },
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            {
                "id": "plan-1234",
                "documentType": "procurementPlan",
                "title": "M75 Junction 4 to 5 Smart Motorway procurement plan.",
                "description": "Procurement plan for the M75 Junction 4 to 5 Smart␣
→Motorway covering the full life-cycle of the Smart Motorway junction upgrade.",
                "url": "https://example.com/he/M75-junctions-4-to-5-smart-motorway/
→results/M75J4-5+procurement+plan.pdf",
                "datePublished": "2016-05-01T00:00:00Z",
                "dateModified": "2016-05-11T00:00:00Z",
                "format": "application/pdf",
```

```
                "language": "en",
                "author": "Fred Consulter"
            },
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                "documentType": "environmentalImpact",
                "title": "Environmental Study Report",
                "description": "An Environmental Study Report into the M75 Junction
→4 to 5 Smart Motorway Upgrade",
                "url": "http://example.com/roads/road-projects/
→M75+junctions+4+to+5++smart+motorway/M75+J4-5SM+Environmental+Study+Report.pdf",
                "datePublished": "2016-02-10T00:00:00Z",
                "dateModified": "2016-12-15T00:00:00Z",
                "format": "application/pdf",
                "author": "Jane Environment, Environment Motorway Consultants Ltd."
            },
            {
                "id": "budget-approval-5678",
                "documentType": "budgetApproval",
                "title": "Approval of Budget for M75 J4-5 upgrade",
                "description": "A full budget approval document for the M75 J4-5
→upgrade with budgeting for design, build and supervision.",
                "url": "http://example.com/roads/road-projects/
→M75+unctions+4+to+5+budget+approval.pdf",
                "datePublished": "2015-10-01T00:00:00Z",
                "dateModified": "2018-03-01T00:00:00Z",
                "format": "application/pdf",
                "author": "UK Motorways Budget Agency",
                "pageStart": "55",
                "pageEnd": "60",
                "accessDetails": "Documents can be inspected in the Motoways UK
→Example Archive or users can register for free to access."
            },
            {
                "id": "feasibility-study-8976",
                "documentType": "feasibilityStudy",
                "title": "Feasibility Study for Smart Motorway project: benefits and
→costs",
                "description": "A report commissioned by Motorways UK to carry out
→initial investigations and site visits to esablish the suitability of upgrading the
→existing motorway junctions M75 J4-5 to Smart Motorways.\n\nThe survey recorded
→existing motorway infrastructures and concluded that upgrading to Smart Motorways is
→feasible. \n\nAdditional design issues are noted in the report.",
                "datePublished": "2015-10-10T00:00:00Z",
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                "pageStart": "55"
            }
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```

```
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                                "id": "P1",
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                                "endDate": "2018-01-07T00:00:00Z"
                            },
                            "value": {}
                        },
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                        },
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                        }
                    ]
                }
            ],
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                    "observations": [
                        {
                            "id": "1",
```

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                    "id": "P1",
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                    "id": "P1",
                    "scheme": "UNCEFACT"
                },
                "period": {
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                }
            },
            {
                "id": "3",
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                },
                "period": {
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                    "endDate": "2018-12-01T00:00:00Z"
                }
            }
        ]
    }
],
"contractingProcesses": [
    {
        "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b",
        "summary": {
            "ocid": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b",
            "externalReference": "2016-SMP-M75-J4_J5-construction",
            "nature": [
                "construction"
            ],
            "title": "Smart Motorways Programme - Construction - Package 3 -␣
→M75 J8 - 10",
```

```
                        "description": "Collaborative Delivery Framework (CDF) - Lot 3B -
→ Construction  \u00a310 to  \u00a350m",
                        "status": "closed",
                        "tender": {
                            "procurementMethod": "limited",
                            "procurementMethodDetails": "Restricted procedure",
                            "costEstimate": {
                                "amount": 33000000,
                                "currency": "GBP"
                            },
                            "numberOfTenderers": 1,
                            "tenderers": [
                                {
                                    "name": "Concrete Motorways Construction",
                                    "id": "GB-COH-33333333"
                                }
                            ],
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                                "name": "Motorways UK",
                                "id": "GB-GOR-XX1234"
                            },
                            "administrativeEntity": {
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                            }
                        },
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                                "id": "GB-COH-33333333"
                            }
                        ],
                        "contractValue": {
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                            "currency": "GBP"
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                            "currency": "GBP"
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→00001-1",
                                "source": "https://openspending.org/motorways-uk-
→spending/",
                                "date": "2017-08-07T00:00:00Z",
                                "value": {
```

```
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                                "name": "Motorways UK"
                            },
                            "payee": {
                                "name": "Concrete Motorways Construction",
                                "id": "GB-COH-33333333"
                            },
                            "uri": "https://openspending.org/motorways-uk-spending/
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                        }
                    ],
                    "documents": [
                        {
                            "id": "a1b1c1-construction-excavation-report",
                            "documentType": "physicalProgressReport",
                            "title": "Report on construction excavation",
                            "description": "A report on the construction at Junction␣
↪5 where excavation damaged a watercourse.",
                            "url": "https://example.com/Published/a1b1c1-
↪construction-monitoring.html",
                            "datePublished": "2018-02-01T00:00:00Z",
                            "dateModified": "2018-02-11T00:00:00Z",
                            "format": "text/html",
                            "language": "en",
                            "accessDetails": "Register for document access.",
                            "author": "Motorways UK"
                        },
                        {
                            "id": "a1b1c1-construction-completion",
                            "documentType": "completionCertificate",
                            "title": "Completion certificate for construction at M75␣
↪J4-5 upgrade",
                            "description": "Completion certificate for the␣
↪construction upgrading motorway M75 Junctions 4-5.",
                            "url": "https://example.com/Published/a1b1c1-
↪construction-completion.html",
                            "datePublished": "2018-12-10T00:00:00Z",
                            "format": "text/html",
                            "language": "en",
                            "accessDetails": "Register for document access.",
                            "author": "Motorways UK"
                        }
                    ],
                    "modifications": [
                        {
                            "id": "m27-4-5-construction-modification-001",
                            "date": "2018-04-01T15:15:00Z",
                            "description": "Construction extended for 5 months",
```

```
                                "rationale": "Excavation damaged a watercourse.␣
→Construction extended for repairs.",
                                "type": "duration",
                                "releaseID": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-
→0019b9f3037b-cdfpc3b005",
                                "oldContractPeriod": {
                                    "startDate": "2017-07-07T00:00:00Z",
                                    "endDate": "2018-07-01T00:00:00Z"
                                },
                                "newContractPeriod": {
                                    "startDate": "2017-07-07T00:00:00Z",
                                    "endDate": "2018-12-01T00:00:00Z"
                                }
                            },
                            {
                                "id": "m27-4-5-construction-modification-002",
                                "date": "2018-04-01T15:15:00Z",
                                "description": "Construction scope extended to include␣
→repairing a watercourse",
                                "rationale": "Excavation damaged a watercourse.␣
→Construction scope extended for repairs.",
                                "type": "scope",
                                "releaseID": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-
→0019b9f3037b-cdfpc3b0015"
                            },
                            {
                                "id": "m27-4-5-construction-modification-003",
                                "date": "2018-04-01T15:15:00Z",
                                "description": "Contract value increased from 29000000␣
→to 35250000 to include repairing a watercourse",
                                "rationale": "Excavation damaged a watercourse.␣
→Construction budget extended for repairs.",
                                "type": "value",
                                "releaseID": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-
→0019b9f3037b-cdfpc3b0015",
                                "oldContractValue": {
                                    "amount": 29000000,
                                    "currency": "GBP"
                                },
                                "newContractValue": {
                                    "amount": 35250000,
                                    "currency": "GBP"
                                }
                            }
                        ]
                    },
                    "releases": [
                        {
                            "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-
→cdfpc3b0011",
                            "date": "2015-09-16T15:12:32Z",
                            "tag": [
```

```
                            "tender"
                    ],
                    "url": "https://example.com/Published/releases/5553-b55.json"
                },
                {
                    "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-
→cdfpc3b0012",
                    "date": "2015-12-16T15:15:00Z",
                    "tag": [
                        "award"
                    ],
                    "url": "https://example.com/Published/releases/5553-b56.json"
                },
                {
                    "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-
→cdfpc3b0013",
                    "date": "2015-12-16T15:15:00Z",
                    "tag": [
                        "contract"
                    ],
                    "url": "https://example.com/Published/releases/5553-b57.json"
                },
                {
                    "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-
→cdfpc3b0014",
                    "date": "2015-12-16T15:15:00Z",
                    "tag": [
                        "implementation"
                    ],
                    "url": "https://example.com/Published/releases/5553-b58.json"
                },
                {
                    "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-
→cdfpc3b0015",
                    "date": "2018-04-01T15:15:00Z",
                    "tag": [
                        "implementationUpdate"
                    ],
                    "url": "https://example.com/Published/releases/5553-b59.json"
                },
                {
                    "id": "ocds-a1b1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-
→cdfpc3b0016",
                    "date": "2018-12-10T09:15:00Z",
                    "tag": [
                        "contractTermination"
                    ],
                    "url": "https://example.com/Published/releases/5553-b60.json"
                }
            ]
        },
        {
```

```
            "id": "ocds-a1b1c1-a410a80d-adc8-11e6-9901-0019b9f3037b",
        "summary": {
            "ocid": "ocds-a1b1c1-a410a80d-adc8-11e6-9901-0019b9f3037b",
            "externalReference": "2016-SMP-M75-J4_J5-design",
            "nature": [
                "design"
            ],
            "title": "Smart Motorway Design M75 J4-5",
            "description": "Design of Smart Motorway upgrade M75 J4-5",
            "status": "closed",
            "tender": {
                "procurementMethod": "limited",
                "procurementMethodDetails": "Restricted procedure",
                "costEstimate": {
                    "amount": 2000000,
                    "currency": "GBP"
                },
                "numberOfTenderers": 2,
                "tenderers": [
                    {
                        "name": "A1 Expert Smart Moto Design",
                        "id": "GB-COH-11111111"
                    },
                    {
                        "name": "Motorway Design Services PLC",
                        "id": "GB-COH-12345678"
                    }
                ],
                "procuringEntity": {
                    "name": "Motorways UK",
                    "id": "GB-GOR-XX1234"
                },
                "administrativeEntity": {
                    "name": "Motorways Administrator UK",
                    "id": "GB-GOR-XX9876"
                }
            },
            "suppliers": [
                {
                    "name": "A1 Expert Smart Moto Design",
                    "id": "GB-COH-11111111"
                }
            ],
            "contractValue": {
                "amount": 1950000,
                "currency": "GBP"
            },
            "contractPeriod": {
                "startDate": "2016-06-01T00:00:00Z",
                "endDate": "2017-07-07T00:00:00Z"
            },
            "finalValue": {
```

```
                                "amount": 1950000,
                                "currency": "GBP"
                            },
                            "documents": [
                                {
                                    "id": "a1b1c1-tender-doc-001",
                                    "documentType": "tenderNotice",
                                    "title": "M72 improvements at J4-5: Tender Notice",
                                    "description": "A tender notice for the design of␣
→improvements to M75 J4-5",
                                    "url": "https://example.com/Published/a1b1c1-design-001.
→html",
                                    "datePublished": "2015-12-10T16:45:00Z",
                                    "format": "text/html",
                                    "author": "Motorways UK"
                                }
                            ]
                        },
                        "releases": [
                            {
                                "id": "ocds-cdf-pc10008",
                                "date": "2016-04-01T00:00:00Z",
                                "tag": [
                                    "tender"
                                ],
                                "url": "https://www.example.com/releases/ocds-cdf-pc10008.
→json"
                            },
                            {
                                "id": "ocds-cdf-pc10009",
                                "date": "2016-06-01T15:49:19Z",
                                "tag": [
                                    "award"
                                ],
                                "url": "https://www.example.com/releases/ocds-cdf-pc10009.
→json"
                            },
                            {
                                "id": "ocds-cdf-pc10010",
                                "date": "2017-08-17T00:00:00Z",
                                "tag": [
                                    "implementation",
                                    "contractTermination"
                                ],
                                "url": "https://www.example.com/releases/ocds-cdf-pc10010.
→json"
                            }
                        ]
                    },
                    {
                        "id": "ocds-a1b1c1-370ad85a-097f-4b8c-adf8-09d840c7c48b",
                        "summary": {
```

```
                    "ocid": "ocds-a1b1c1-370ad85a-097f-4b8c-adf8-09d840c7c48b",
                    "externalReference": "2016-SMP-M75-J4_J5-supervision",
                    "nature": [
                        "supervision"
                    ],
                    "title": "Commercial Management and Assurance for the Motorways␣
→Upgrade Programme M75 J4-5",
                    "description": "Specialist Professional and Technical Services␣
→Framework: Commercial Management and Assurance for the Motorways Upgrade Programme M75␣
→J4-5",
                    "status": "closed",
                    "tender": {
                        "procurementMethod": "limited",
                        "procurementMethodDetails": "Framework",
                        "costEstimate": {
                            "amount": 5000000,
                            "currency": "GBP"
                        },
                        "numberOfTenderers": 1,
                        "tenderers": [
                            {
                                "name": "Expert Motorway Supervisors",
                                "id": "GB-COH-22222222"
                            }
                        ],
                        "procuringEntity": {
                            "name": "Motorways UK",
                            "id": "GB-GOR-XX1234"
                        },
                        "administrativeEntity": {
                            "name": "Motorways Administrator UK",
                            "id": "GB-GOR-XX9876"
                        }
                    },
                    "suppliers": [
                        {
                            "name": "Expert Motorway Supervisors",
                            "id": "GB-COH-22222222"
                        }
                    ],
                    "contractValue": {
                        "amount": 4900000,
                        "currency": "GBP"
                    },
                    "contractPeriod": {
                        "startDate": "2017-02-24T00:00:00Z",
                        "endDate": "2018-10-10T00:00:00Z"
                    },
                    "finalValue": {
                        "amount": 4900000,
                        "currency": "GBP"
                    },
```

```
                    "documents": [
                        {
                            "id": "a1b1c1-spats-2-033-completion",
                            "documentType": "completionCertificate",
                            "title": "Completion Certificate for supervision",
                            "description": "A completion certificate for Expert␣
→Motorway Supervisors supervision of M75 J4-5",
                            "url": "https://example.com/Published/a1b1c1-spats-2-033-
→completion.html",
                            "datePublished": "2018-12-10T16:45:00Z",
                            "format": "text/html"
                        }
                    ]
                },
                "releases": [
                    {
                        "id": "ocds-a1b1c1-spats-2-033e",
                        "date": "2017-03-02T17:14:37Z",
                        "tag": [
                            "tender"
                        ],
                        "url": "https://example.com/releases/ex-a1b1c1--033e.json"
                    },
                    {
                        "id": "ocds-a1b1c1-spats-2-033f",
                        "date": "2017-05-02T17:14:37Z",
                        "tag": [
                            "award"
                        ],
                        "url": "https://example.com/releases/ex-a1b1c1--033f.json"
                    },
                    {
                        "id": "ocds-a1b1c1-spats-2-033g",
                        "date": "2017-07-02T17:14:37Z",
                        "tag": [
                            "implementation"
                        ],
                        "url": "https://example.com/Published/releases/ex-a1b1c1--
→033g.json"
                    },
                    {
                        "id": "ocds-a1b1c1-spats-2-033h",
                        "date": "2018-12-10T14:45:00Z",
                        "tag": [
                            "contractTermination"
                        ],
                        "url": "https://example.com/releases/ex-a1b1c1--033h.json"
                    }
                ]
            }
        ],
        "completion": {
```

```
                "endDate": "2018-12-10T00:00:00Z",
                "endDateDetails": "Construction was delayed due to excavation problems␣
→when a watercourse was damaged.",
                "finalValue": {
                    "amount": 42100000,
                    "currency": "GBP"
                },
                "finalValueDetails": "Budget increase due to construction delay.",
                "finalScope": "Upgrade of Junctions 4 and 5 and repairs to the␣
→watercourse at Junction 5.",
                "finalScopeDetails": "Scope was expanded to include repairs to a␣
→watercourse damaged during construction excavation."
            }
        }
    ]
}
```

Blank example

The blank example is a JSON file that conforms to the structure of the *project schema*. You can view the blank example below or download the JSON file. Field values are replaced with either:

- Empty strings ("") or empty arrays ([])

- The type of the field, e.g. "string" or "array"

- The name of the codelist referenced by the field, e.g. "string from currency codelist"

```
{
    "id": "",
    "updated": "",
    "title": "",
    "description": "",
    "status": "string from projectStatus codelist",
    "period": {
        "startDate": "string",
        "endDate": "string",
        "maxExtentDate": "string",
        "durationInDays": "integer"
    },
    "sector": [],
    "purpose": "",
    "additionalClassifications": [
        {
            "scheme": "string",
            "id": "",
            "description": "string",
            "uri": "string"
        }
    ],
    "type": "string from projectType codelist",
    "relatedProjects": [
```

```json
        {
            "id": "",
            "scheme": "",
            "identifier": "",
            "relationship": "",
            "title": "",
            "uri": ""
        }
    ],
    "assetLifetime": {
        "startDate": "string",
        "endDate": "string",
        "maxExtentDate": "string",
        "durationInDays": "integer"
    },
    "locations": [
        {
            "id": "",
            "description": "string",
            "geometry": {
                "type": "string from geometryType codelist",
                "coordinates": "array"
            },
            "gazetteer": {
                "scheme": "string",
                "identifiers": "array"
            },
            "uri": "string",
            "address": {
                "streetAddress": "string",
                "locality": "string",
                "region": "string",
                "postalCode": "string",
                "countryName": "string"
            }
        }
    ],
    "budget": {
        "description": "",
        "amount": {
            "amount": "number",
            "currency": "string from currency codelist"
        },
        "requestDate": "",
        "approvalDate": "",
        "budgetBreakdown": [
            {
                "id": "",
                "description": "string",
                "amount": {
                    "amount": "number",
                    "currency": "string from currency codelist"
```

```
                    },
                    "uri": "string",
                    "period": {
                        "startDate": "string",
                        "endDate": "string",
                        "maxExtentDate": "string",
                        "durationInDays": "integer"
                    },
                    "sourceParty": {
                        "name": "string",
                        "id": ""
                    }
                }
            ]
        },
        "forecasts": [
            {
                "id": "",
                "title": "string",
                "description": "string",
                "observations": [
                    {
                        "id": "",
                        "period": {
                            "startDate": "string",
                            "endDate": "string",
                            "maxExtentDate": "string",
                            "durationInDays": "integer"
                        },
                        "value": {
                            "amount": "number",
                            "currency": "string from currency codelist"
                        },
                        "measure": "string",
                        "unit": {
                            "name": "string",
                            "scheme": "string",
                            "id": "",
                            "uri": "string"
                        },
                        "dimensions": {},
                        "notes": "string"
                    }
                ]
            }
        ],
        "parties": [
            {
                "name": "string",
                "id": "",
                "identifier": {
                    "scheme": "string",
```

```
                    "id": "",
                    "legalName": "string",
                    "uri": "string"
                },
                "additionalIdentifiers": [
                    {
                        "scheme": "string",
                        "id": "",
                        "legalName": "string",
                        "uri": "string"
                    }
                ],
                "address": {
                    "streetAddress": "string",
                    "locality": "string",
                    "region": "string",
                    "postalCode": "string",
                    "countryName": "string"
                },
                "contactPoint": {
                    "name": "string",
                    "email": "string",
                    "telephone": "string",
                    "faxNumber": "string",
                    "url": "string"
                },
                "roles": "array",
                "people": [
                    {
                        "id": "",
                        "name": "",
                        "jobTitle": ""
                    }
                ]
            }
        ],
        "publicAuthority": {
            "name": "string",
            "id": ""
        },
        "documents": [
            {
                "id": "",
                "documentType": "string",
                "title": "string",
                "description": "string",
                "url": "string",
                "datePublished": "string",
                "dateModified": "string",
                "format": "string",
                "language": "string",
                "pageStart": "string",
```

```
            "pageEnd": "string",
            "accessDetails": "string",
            "author": "string"
        }
    ],
    "contractingProcesses": [
        {
            "id": "",
            "summary": {
                "ocid": "",
                "externalReference": "",
                "nature": [],
                "title": "",
                "description": "",
                "status": "string from contractingProcessStatus codelist",
                "tender": {
                    "procurementMethod": "string from method codelist",
                    "procurementMethodDetails": "",
                    "costEstimate": {
                        "amount": "number",
                        "currency": "string from currency codelist"
                    },
                    "numberOfTenderers": 0,
                    "tenderers": [
                        {
                            "name": "string",
                            "id": ""
                        }
                    ],
                    "procuringEntity": {
                        "name": "string",
                        "id": ""
                    },
                    "administrativeEntity": {
                        "name": "string",
                        "id": ""
                    }
                },
                "suppliers": [
                    {
                        "name": "string",
                        "id": ""
                    }
                ],
                "contractValue": {
                    "amount": "number",
                    "currency": "string from currency codelist"
                },
                "contractPeriod": {
                    "startDate": "string",
                    "endDate": "string",
                    "maxExtentDate": "string",
```

```
                "durationInDays": "integer"
            },
            "finalValue": {
                "amount": "number",
                "currency": "string from currency codelist"
            },
            "documents": [
                {
                    "id": "",
                    "documentType": "string",
                    "title": "string",
                    "description": "string",
                    "url": "string",
                    "datePublished": "string",
                    "dateModified": "string",
                    "format": "string",
                    "language": "string",
                    "pageStart": "string",
                    "pageEnd": "string",
                    "accessDetails": "string",
                    "author": "string"
                }
            ],
            "modifications": [
                {
                    "id": "",
                    "date": "string",
                    "description": "string",
                    "rationale": "string",
                    "type": "string",
                    "releaseID": "string",
                    "oldContractValue": {
                        "amount": "number",
                        "currency": "string from currency codelist"
                    },
                    "newContractValue": {
                        "amount": "number",
                        "currency": "string from currency codelist"
                    },
                    "oldContractPeriod": {
                        "startDate": "string",
                        "endDate": "string",
                        "maxExtentDate": "string",
                        "durationInDays": "integer"
                    },
                    "newContractPeriod": {
                        "startDate": "string",
                        "endDate": "string",
                        "maxExtentDate": "string",
                        "durationInDays": "integer"
                    }
                }
```

```
                ],
                "transactions": [
                    {
                        "id": "",
                        "source": "string",
                        "date": "string",
                        "value": {
                            "amount": "number",
                            "currency": "string from currency codelist"
                        },
                        "payer": {
                            "name": "string",
                            "id": ""
                        },
                        "payee": {
                            "name": "string",
                            "id": ""
                        },
                        "uri": "string"
                    }
                ]
            },
            "releases": [
                {
                    "id": "",
                    "tag": [],
                    "date": "",
                    "url": ""
                }
            ]
        }
    ],
    "metrics": [
        {
            "id": "",
            "title": "string",
            "description": "string",
            "observations": [
                {
                    "id": "",
                    "period": {
                        "startDate": "string",
                        "endDate": "string",
                        "maxExtentDate": "string",
                        "durationInDays": "integer"
                    },
                    "value": {
                        "amount": "number",
                        "currency": "string from currency codelist"
                    },
                    "measure": "string",
                    "unit": {
```

```json
                "name": "string",
                "scheme": "string",
                "id": "",
                "uri": "string"
            },
            "dimensions": {},
            "notes": "string"
        }
    ]
}
],
"completion": {
    "endDate": "",
    "endDateDetails": "",
    "finalValue": {
        "amount": "number",
        "currency": "string from currency codelist"
    },
    "finalValueDetails": "",
    "finalScope": "",
    "finalScopeDetails": ""
}
}
```

1.4.8 Publishing data in your own language

You can publish the values of free-text fields – like `title`, `description` and `parties/name` – in your own language. You ought to set the `language` field to the language used in these free-text fields. For example:

```json
{
  "id": "1",
  "title": "",
  "type": "construction",
  "language": "th"
}
```

In order for your data to be interoperable and compatible with OC4IDS tools and methodologies:

- Do not translate codes from codelists. For example, the value of the `type` field needs to be a code from the *ProjectType codelist*, like 'construction'. You cannot translate 'construction' to '':

```json
{
  "id": "incorrect-example-1",
  "type": "",
}
```

- Do not translate field names (object keys). For example, you cannot translate `title` to :

```json
{
  "id": "incorrect-example-2",
  "": "",
}
```

The fields whose values can be translated are listed in the *internationalization lookup table*.

Translating headers in spreadsheets/CSVs

In order to ease access for non-English speakers, instead of using the field *names* as column headers (which are always in English), you can use the field *titles*.

The titles are currently available in English and Spanish. If you would like to translate the titles to your own language, please contact the OC4IDS Helpdesk.

For example, this CSV excerpt uses field titles from the Spanish translation of OC4IDS:

Identificador o Referencia	Título del Proyecto
1	proyecto de ejemplo

You can use Flatten Tool to generate files with translated field titles. For example, this command converts the example OC4IDS JSON file to XLSX format, using field titles from the Spanish schema:

```
flatten-tool flatten -s https://standard.open-contracting.org/infrastructure/0.9/es/
→project-schema.json -f xlsx --use-titles --root-id=id --root-list-path=projects␣
→example.json
```

Publishing in multiple languages

To publish data in multiple languages, follow the above guidance and publish a separate *project package* for each language. You need to ensure that the values of `id` fields are consistent across packages, so that users can find the translations of objects.

Internationalization lookup table

Use the following table to check whether a field can be published in your own language. You can download the table as a CSV spreadsheet.

path	title	translatable	n
id	Identifier or Reference	True	C
updated	Last updated	False	
title	Project title	True	
description	Project description	True	
status	Status	False	
period	Project period	False	
period	Period	False	
period/startDate	Start date	False	
period/endDate	End date	False	
period/maxExtentDate	Maximum extent	False	
period/durationInDays	Duration (days)	False	
sector	Project sector	False	
purpose	Project purpose	True	
additionalClassifications	Additional classifications	False	
additionalClassifications	Classification	False	
additionalClassifications/scheme	Scheme	False	

Table 3 – continued from previous page

path	title	translatable	n
additionalClassifications/id	ID	True	
additionalClassifications/description	Description	True	
additionalClassifications/uri	URI	False	
type	Project type	False	
relatedProjects	Related projects	False	
relatedProjects	Related project	False	
relatedProjects/id	Relationship ID	True	
relatedProjects/scheme	Scheme	False	
relatedProjects/identifier	Identifier	True	
relatedProjects/relationship	Relationship	False	
relatedProjects/title	Related project title	True	
relatedProjects/uri	Related project URI	False	
assetLifetime	Asset lifetime	False	
assetLifetime	Period	False	
assetLifetime/startDate	Start date	False	
assetLifetime/endDate	End date	False	
assetLifetime/maxExtentDate	Maximum extent	False	
assetLifetime/durationInDays	Duration (days)	False	
locations	Project locations	False	
locations	Delivery Location	False	
locations/id	Identifier	True	
locations/description	Description	True	
locations/geometry	Geometry	False	
locations/geometry/type	Type	False	
locations/geometry/coordinates	Coordinates	False	
locations/gazetteer	Gazetteer	False	
locations/gazetteer/scheme	Gazetteer scheme	False	
locations/gazetteer/identifiers	Identifiers	False	
locations/uri	URI	True	
locations/address	Address	False	
locations/address	Address	False	
locations/address/streetAddress	Street address	True	
locations/address/locality	Locality	True	
locations/address/region	Region	True	
locations/address/postalCode	Postal code	True	
locations/address/countryName	Country name	True	
budget	Total project value	False	
budget/description	Description	True	
budget/amount	Amount	False	
budget/amount	Value	False	
budget/amount/amount	Amount	False	
budget/amount/currency	Currency	False	
budget/requestDate	Request date	False	
budget/approvalDate	Approval date	False	
budget/budgetBreakdown	Budget breakdown	False	
budget/budgetBreakdown	Detailed budget breakdown	False	
budget/budgetBreakdown/id	Identifier	True	
budget/budgetBreakdown/description	Description	True	
budget/budgetBreakdown/amount	Amount	False	

Table 3 – continued from previous page

path	title	translatable	n
budget/budgetBreakdown/amount	Value	False	
budget/budgetBreakdown/amount/amount	Amount	False	
budget/budgetBreakdown/amount/currency	Currency	False	
budget/budgetBreakdown/approvalDate	Approval date	False	
budget/budgetBreakdown/uri	Linked budget information	False	
budget/budgetBreakdown/period	Budget period	False	
budget/budgetBreakdown/period	Period	False	
budget/budgetBreakdown/period/startDate	Start date	False	
budget/budgetBreakdown/period/endDate	End date	False	
budget/budgetBreakdown/period/maxExtentDate	Maximum extent	False	
budget/budgetBreakdown/period/durationInDays	Duration (days)	False	
budget/budgetBreakdown/sourceParty	Source party	False	
budget/budgetBreakdown/sourceParty	Organization reference	False	
budget/budgetBreakdown/sourceParty/name	Organization name	True	
budget/budgetBreakdown/sourceParty/id	Organization ID	True	
forecasts	Forecasts	False	
forecasts	Metric	False	
forecasts/id	Identifier	False	
forecasts/title	Title	True	
forecasts/description	Description	True	
forecasts/observations	Observations	False	
forecasts/observations	Observation	False	
forecasts/observations/id	Identifier	True	
forecasts/observations/period	Period	False	
forecasts/observations/period	Period	False	
forecasts/observations/period/startDate	Start date	False	
forecasts/observations/period/endDate	End date	False	
forecasts/observations/period/maxExtentDate	Maximum extent	False	
forecasts/observations/period/durationInDays	Duration (days)	False	
forecasts/observations/value	Value	False	
forecasts/observations/value	Value	False	
forecasts/observations/value/amount	Amount	False	
forecasts/observations/value/currency	Currency	False	
forecasts/observations/measure	Measure	False	C
forecasts/observations/unit	Unit	False	
forecasts/observations/unit/name	Unit name	True	
forecasts/observations/unit/scheme	Scheme	False	
forecasts/observations/unit/id	ID	True	
forecasts/observations/unit/uri	URI	False	
forecasts/observations/dimensions	Dimensions	False	
forecasts/observations/notes	Notes	True	
parties	Parties	False	
parties	Organization	False	
parties/name	Common name	True	
parties/id	Entity ID	True	
parties/identifier	Primary identifier	False	
parties/identifier	Identifier	False	
parties/identifier/scheme	Scheme	True	
parties/identifier/id	ID	True	

Table 3 – continued from previous page

path	title	translatable	n
parties/identifier/legalName	Legal Name	True	
parties/identifier/uri	URI	False	
parties/additionalIdentifiers	Additional identifiers	False	
parties/additionalIdentifiers	Identifier	False	
parties/additionalIdentifiers/scheme	Scheme	True	
parties/additionalIdentifiers/id	ID	True	
parties/additionalIdentifiers/legalName	Legal Name	True	
parties/additionalIdentifiers/uri	URI	False	
parties/address	Address	False	
parties/address	Address	False	
parties/address/streetAddress	Street address	True	
parties/address/locality	Locality	True	
parties/address/region	Region	True	
parties/address/postalCode	Postal code	True	
parties/address/countryName	Country name	True	
parties/contactPoint	Contact point	False	
parties/contactPoint	Contact point	False	
parties/contactPoint/name	Name	True	
parties/contactPoint/email	Email	True	
parties/contactPoint/telephone	Telephone	True	
parties/contactPoint/faxNumber	Fax number	True	
parties/contactPoint/url	URL	False	
parties/roles	Party roles	False	
parties/people	People	False	
parties/people	Person	False	
parties/people/id	Identifier	True	
parties/people/name	Name	True	
parties/people/jobTitle	Job title	True	
publicAuthority	Public authority	False	
publicAuthority	Organization reference	False	
publicAuthority/name	Organization name	True	
publicAuthority/id	Organization ID	True	
documents	Documents	False	
documents	Document	False	
documents/id	ID	True	
documents/documentType	Document type	False	
documents/title	Title	True	
documents/description	Description	True	
documents/url	URL	False	
documents/datePublished	Date published	False	
documents/dateModified	Date modified	False	
documents/format	Format	True	
documents/language	Language	True	
documents/pageStart	Page start	True	
documents/pageEnd	Page end	True	
documents/accessDetails	Access details	True	
documents/author	Author	True	
contractingProcesses	Contracting processes	False	
contractingProcesses	Contracting process	False	

Table 3 – continued from previous page

path	title	translatable	n
contractingProcesses/id	Identifier	True	C
contractingProcesses/summary	Summary	False	
contractingProcesses/summary	Summary	False	
contractingProcesses/summary/ocid	Open Contracting Identifier	True	C
contractingProcesses/summary/externalReference	External reference	True	
contractingProcesses/summary/nature	Nature	False	
contractingProcesses/summary/title	Title	True	
contractingProcesses/summary/description	Description	True	
contractingProcesses/summary/status	Status	False	
contractingProcesses/summary/tender	Tender	False	
contractingProcesses/summary/tender/procurementMethod	Procurement method	False	
contractingProcesses/summary/tender/procurementMethodDetails	Procurement method details	True	
contractingProcesses/summary/tender/costEstimate	Cost estimate	False	
contractingProcesses/summary/tender/costEstimate	Value	False	
contractingProcesses/summary/tender/costEstimate/amount	Amount	False	
contractingProcesses/summary/tender/costEstimate/currency	Currency	False	
contractingProcesses/summary/tender/numberOfTenderers	Number of tenderers	False	
contractingProcesses/summary/tender/tenderers	Tenderers	False	
contractingProcesses/summary/tender/tenderers	Organization reference	False	
contractingProcesses/summary/tender/tenderers/name	Organization name	True	
contractingProcesses/summary/tender/tenderers/id	Organization ID	True	
contractingProcesses/summary/tender/procuringEntity	Procuring entity	False	
contractingProcesses/summary/tender/procuringEntity	Organization reference	False	
contractingProcesses/summary/tender/procuringEntity/name	Organization name	True	
contractingProcesses/summary/tender/procuringEntity/id	Organization ID	True	
contractingProcesses/summary/tender/administrativeEntity	Administrative entity	False	
contractingProcesses/summary/tender/administrativeEntity	Organization reference	False	
contractingProcesses/summary/tender/administrativeEntity/name	Organization name	True	
contractingProcesses/summary/tender/administrativeEntity/id	Organization ID	True	
contractingProcesses/summary/suppliers	Suppliers	False	
contractingProcesses/summary/suppliers	Organization reference	False	
contractingProcesses/summary/suppliers/name	Organization name	True	
contractingProcesses/summary/suppliers/id	Organization ID	True	
contractingProcesses/summary/contractValue	Contract value	False	
contractingProcesses/summary/contractValue	Value	False	
contractingProcesses/summary/contractValue/amount	Amount	False	
contractingProcesses/summary/contractValue/currency	Currency	False	
contractingProcesses/summary/contractPeriod	Contract period	False	
contractingProcesses/summary/contractPeriod	Period	False	
contractingProcesses/summary/contractPeriod/startDate	Start date	False	
contractingProcesses/summary/contractPeriod/endDate	End date	False	
contractingProcesses/summary/contractPeriod/maxExtentDate	Maximum extent	False	
contractingProcesses/summary/contractPeriod/durationInDays	Duration (days)	False	
contractingProcesses/summary/finalValue	Final value	False	
contractingProcesses/summary/finalValue	Value	False	
contractingProcesses/summary/finalValue/amount	Amount	False	
contractingProcesses/summary/finalValue/currency	Currency	False	
contractingProcesses/summary/documents	Documents	False	
contractingProcesses/summary/documents	Document	False	

Table 3 – continued from previous page

path	title	translatable	n
contractingProcesses/summary/documents/id	ID	True	
contractingProcesses/summary/documents/documentType	Document type	False	
contractingProcesses/summary/documents/title	Title	True	
contractingProcesses/summary/documents/description	Description	True	
contractingProcesses/summary/documents/url	URL	False	
contractingProcesses/summary/documents/datePublished	Date published	False	
contractingProcesses/summary/documents/dateModified	Date modified	False	
contractingProcesses/summary/documents/format	Format	True	
contractingProcesses/summary/documents/language	Language	True	
contractingProcesses/summary/documents/pageStart	Page start	True	
contractingProcesses/summary/documents/pageEnd	Page end	True	
contractingProcesses/summary/documents/accessDetails	Access details	True	
contractingProcesses/summary/documents/author	Author	True	
contractingProcesses/summary/modifications	Modifications	False	
contractingProcesses/summary/modifications	Modification	False	
contractingProcesses/summary/modifications/id	Identifier	True	
contractingProcesses/summary/modifications/date	Date	False	
contractingProcesses/summary/modifications/description	Description	True	
contractingProcesses/summary/modifications/rationale	Rationale	True	
contractingProcesses/summary/modifications/type	Type	False	
contractingProcesses/summary/modifications/releaseID	Release ID	True	
contractingProcesses/summary/modifications/oldContractValue	Old contract value	False	
contractingProcesses/summary/modifications/oldContractValue	Value	False	
contractingProcesses/summary/modifications/oldContractValue/amount	Amount	False	
contractingProcesses/summary/modifications/oldContractValue/currency	Currency	False	
contractingProcesses/summary/modifications/newContractValue	New contract value	False	
contractingProcesses/summary/modifications/newContractValue	Value	False	
contractingProcesses/summary/modifications/newContractValue/amount	Amount	False	
contractingProcesses/summary/modifications/newContractValue/currency	Currency	False	
contractingProcesses/summary/modifications/oldContractPeriod	Old contract period	False	
contractingProcesses/summary/modifications/oldContractPeriod	Period	False	
contractingProcesses/summary/modifications/oldContractPeriod/startDate	Start date	False	
contractingProcesses/summary/modifications/oldContractPeriod/endDate	End date	False	
contractingProcesses/summary/modifications/oldContractPeriod/maxExtentDate	Maximum extent	False	
contractingProcesses/summary/modifications/oldContractPeriod/durationInDays	Duration (days)	False	
contractingProcesses/summary/modifications/newContractPeriod	New contract period	False	
contractingProcesses/summary/modifications/newContractPeriod	Period	False	
contractingProcesses/summary/modifications/newContractPeriod/startDate	Start date	False	
contractingProcesses/summary/modifications/newContractPeriod/endDate	End date	False	
contractingProcesses/summary/modifications/newContractPeriod/maxExtentDate	Maximum extent	False	
contractingProcesses/summary/modifications/newContractPeriod/durationInDays	Duration (days)	False	
contractingProcesses/summary/transactions	Transactions	False	
contractingProcesses/summary/transactions	Transaction information	False	
contractingProcesses/summary/transactions/id	ID	True	
contractingProcesses/summary/transactions/source	Data source	False	
contractingProcesses/summary/transactions/date	Date	False	
contractingProcesses/summary/transactions/value	Value	False	
contractingProcesses/summary/transactions/value	Value	False	
contractingProcesses/summary/transactions/value/amount	Amount	False	

Table 3 – continued from previous page

path	title	translatable	n
contractingProcesses/summary/transactions/value/currency	Currency	False	
contractingProcesses/summary/transactions/payer	Payer	False	
contractingProcesses/summary/transactions/payer	Organization reference	False	
contractingProcesses/summary/transactions/payer/name	Organization name	True	
contractingProcesses/summary/transactions/payer/id	Organization ID	True	
contractingProcesses/summary/transactions/payee	Payee	False	
contractingProcesses/summary/transactions/payee	Organization reference	False	
contractingProcesses/summary/transactions/payee/name	Organization name	True	
contractingProcesses/summary/transactions/payee/id	Organization ID	True	
contractingProcesses/summary/transactions/uri	Linked spending information	False	
contractingProcesses/releases	Linked releases	False	
contractingProcesses/releases	Release	False	
contractingProcesses/releases/id	ID	True	
contractingProcesses/releases/tag	Release tag	False	
contractingProcesses/releases/date	Date	False	
contractingProcesses/releases/url	URL	False	
metrics	Metrics	False	
metrics	Metric	False	
metrics/id	Identifier	False	
metrics/title	Title	True	
metrics/description	Description	True	
metrics/observations	Observations	False	
metrics/observations	Observation	False	
metrics/observations/id	Identifier	True	
metrics/observations/period	Period	False	
metrics/observations/period	Period	False	
metrics/observations/period/startDate	Start date	False	
metrics/observations/period/endDate	End date	False	
metrics/observations/period/maxExtentDate	Maximum extent	False	
metrics/observations/period/durationInDays	Duration (days)	False	
metrics/observations/value	Value	False	
metrics/observations/value	Value	False	
metrics/observations/value/amount	Amount	False	
metrics/observations/value/currency	Currency	False	
metrics/observations/measure	Measure	False	
metrics/observations/unit	Unit	False	
metrics/observations/unit/name	Unit name	True	
metrics/observations/unit/scheme	Scheme	False	
metrics/observations/unit/id	ID	True	
metrics/observations/unit/uri	URI	False	
metrics/observations/dimensions	Dimensions	False	
metrics/observations/notes	Notes	True	
completion	Completion	False	
completion/endDate	End date	False	
completion/endDateDetails	End date details	True	
completion/finalValue	Final value	False	
completion/finalValue	Value	False	
completion/finalValue/amount	Amount	False	
completion/finalValue/currency	Currency	False	

Table 3 – continued from previous page

path	title	translatable	n
completion/finalValueDetails	Final value details	True	
completion/finalScope	Final scope	True	
completion/finalScopeDetails	Final scope details	True	
language	Language	True	

1.5 CoST IDS & OCDS Mapping

CoST – the Infrastructure Transparency Initiative (CoST) is the leading global initiative improving transparency and accountability in public infrastructure.

The CoST approach is based on four core features:

- **Disclosure** - where procuring entities are asked to follow the CoST Infrastructure Data Standard. This describes 40 items of data that ought to be proactively disclosed at key stages of an infrastructure project cycle.

- **Assurance** - an independent review of the disclosed data by assurance teams based within CoST national programmes. Teams identify key issues of concern analyzing the data that has been disclosed, and will put technical terms into plain language to allow stakeholders to understand the issues, and hold decision makers to account.

- **Multi-stakeholder working** - each CoST national programme is managed by a stakeholder group including government, private sector and civil society.

- **Social accountability** - raising awareness of key issues arising from the assurance process, and engaging civil society and media to hold decision makers to account.

The 'Infrastructure Data Standard' is a **framework for disclosure** which has been adapted by a range of CoST national programmes, who have variously prioritized different elements based on their local needs, or who have included additional elements that they wish to monitor: particularly additional kinds of documentation that ought to be provided for each infrastructure project.

You can read more about the Infrastructure Data Standard on the CoST website.

Frameworks and standards

There is an important distinction between the Infrastructure Data Standard (IDS) and the Open Contracting Data Standard (OCDS). IDS provides a framework to identify *categories of information* that ought to be disclosed. OCDS describes *specific fields* and how they should be structured as data.

The *Open Contracting for Infrastructure Data Standard (OC4IDS)* documented on this site acts as a bridge between the IDS framework, and the idea of a more structured technical data standard.

The following tables document two mappings:

- The *CoST IDS to OC4IDS* mapping describes how to represent each element of the CoST IDS as structured data using OC4IDS. Use this mapping if you already collect data according to the CoST IDS and you want to publish your data using OC4IDS, or if you want to make sure that your OC4IDS publication conforms to the CoST IDS.

- The *OCDS to OC4IDS* mapping describes how to use OCDS data to populate the sections of an OC4IDS file which relate to the CoST IDS. Use this mapping if you have access to OCDS data on infrastructure contracting processes and you want to create a summary by project in OC4IDS format, or if you want to check which CoST IDS elements your OCDS data covers.

The organization of the mapping tables reflects the structure of the CoST IDS, which is described in *Getting Started*.

The mapping tables use / notation to reference fields in OCDS data, e.g. `/tender/status`, and `.` notation to reference fields in the OC4IDS schema, e.g. `.budget.approvalDate`.

The CoST IDS also sets out a number of disclosure requirements under the heading of 'information for disclosure upon request', also known as 'reactive disclosure'. You can disclose these elements proactively using OC4IDS. Separate tables are provided for reactive disclosures in each mapping.

1.5.1 Common operations

To avoid repetition in the mapping, we refer and link to the following common operations.

Add a project document

Add a `Document` object to the `documents` array and set its fields as follows:

- Set its `.id` incrementally
- Set its `.url` to a direct link to the document
- Set its `.title` to the title of the document

Add a contracting process document

Add a `Document` object to the `contractingProcesses.summary.documents` array and set its fields as follows:

- Set its `.id` incrementally
- Set its `.url` to a direct link to the document
- Set its `.title` to the title of the document

1.5.2 CoST IDS to OC4IDS Mapping

Project level

Identification

Preparation

Project completion

Reactive disclosures

Identification and preparation

Completion

Implementation progress reports

In addition to the documents listed in the mapping table, you can use OC4IDS to publish structured data on planned and actual physical and financial progress.

Choose from the following options, depending on the data you collect and the data needed by your use cases.

Actual progress over time

- Add a `Metric` object to the `metrics` array and:

    - For financial progress, set its `id` to 'financialProgress' and set its title to 'Financial progress', or the equivalent in the language of your publication.

    - For physical progress, set its `id` to 'physicalProgress' and set its title to 'Physical progress', or the equivalent in the language of your publication.

- For each progress update, add an `Observation` object to the `Metric` object's `.observations` array and:

    - Set its `.id` incrementally

    - Set its `.measure` to the financial progress of the project. For example, for a project that is 75% complete, set `.measure` to 75

    - Set its `.unit.name` to 'percent', set its `unit.id` to 'P1' and set its `unit.scheme` to 'UNCEFACT'

    - Set its `period.startDate` and `period.endDate` to the date on which the financial progress was measured

Example:

```json
{
  "metrics": [
    {
      "id": "physicalProgress",
      "title": "Physical progress",
      "observations": [
        {
          "id": "1",
          "measure": "4.04",
          "unit": {
            "name": "percent",
            "id": "P1",
            "scheme": "UNCEFACT"
          },
          "period": {
            "startDate": "2017-03-31T23:59:59Z",
            "endDate": "2017-03-31T23:59:59Z"
          }
        },
        {
          "id": "2",
          "measure": "7.98",
          "unit": {
            "name": "percent",
            "id": "P1",
            "scheme": "UNCEFACT"
          },
          "period": {
            "startDate": "2017-04-30T23:59:59Z",
            "endDate": "2017-04-30T23:59:59Z"
          }
        },
```

```
        {
          "id": "3",
          "measure": "8.38",
          "unit": {
            "name": "percent",
            "id": "P1",
            "scheme": "UNCEFACT"
          },
          "period": {
            "startDate": "2017-05-31T23:59:59Z",
            "endDate": "2017-05-31T23:59:59Z"
          }
        }
      ]
    }
  ]
}
```

A single progress figure

If your implementation does not store a change history, you can publish a single `Observation` object for each `Metric` and update the `Observation` object's `.measure` each time there is a progress update.

Example:

```
{
  "metrics": [
    {
      "id": "financialProgress",
      "title": "Financial progress",
      "observations": [
        {
          "id": "1",
          "measure": "4.04",
          "unit": {
            "name": "percent",
            "id": "P1",
            "scheme": "UNCEFACT"
          },
          "period": {
            "startDate": "2017-03-31T23:59:59Z",
            "endDate": "2017-03-31T23:59:59Z"
          }
        }
      ]
    }
  ]
}
```

Planned progress over time

You can use the `forecasts` array to publish progress forecasts for different points in time.

- Add a `Metric` object to the `forecasts` array and:

- For financial progress, set its `id` to 'financialProgress' and set its title to 'Financial progress', or the equivalent in the language of your publication.

- For physical progress, set its `id` to 'physicalProgress' and set its title to 'Physical progress', or the equivalent in the language of your publication.

- For each forecast, add an `Observation` object to the `Metric` object's `.observations` array and:

  - Set its `.id` incrementally

  - Set its `.measure` to the forecast progress of the project. For example, to forecast when the project is expected to be complete, set `.measure` to `100`.

  - Set its `.unit.name` to 'percent', set its `unit.id` to 'P1' and set its `unit.scheme` to 'UNCEFACT'

  - Set its `period.startDate` and `period.endDate` to the date on which you expect the progress to be achieved

Example:

```json
{
  "forecasts": [
    {
      "id": "physicalProgress",
      "title": "Physical progress",
      "observations": [
        {
          "id": "1",
          "measure": "4.04",
          "unit": {
            "name": "percent",
            "id": "P1",
            "scheme": "UNCEFACT"
          },
          "period": {
            "startDate": "2017-03-31T23:59:59Z",
            "endDate": "2017-03-31T23:59:59Z"
          }
        },
        {
          "id": "2",
          "measure": "7.98",
          "unit": {
            "name": "percent",
            "id": "P1",
            "scheme": "UNCEFACT"
          },
          "period": {
            "startDate": "2017-04-30T23:59:59Z",
            "endDate": "2017-04-30T23:59:59Z"
          }
        },
        {
          "id": "3",
          "measure": "8.38",
          "unit": {
            "name": "percent",
```

```
          "id": "P1",
          "scheme": "UNCEFACT"
        },
        "period": {
          "startDate": "2017-05-31T23:59:59Z",
          "endDate": "2017-05-31T23:59:59Z"
        }
      }
    ]
  }
 ]
}
```

Process level

The mappings in this section relate to the `contractingProcesses` section of the OC4IDS schema, unless otherwise specified.

Procurement

Implementation

Reactive disclosures

Procurement

Contract

Implementation

1.5.3 OCDS to OC4IDS Mapping

Guidance

Command-line tool and reference implementation

OC4IDS Kit's convert-from-ocds command is a command-line tool and reference implementation for converting OCDS data to OC4IDS format.

`convert-from-ocds` covers most mappings in the following categories:

- project-level identification
- project-level preparation
- process-level procurement

However, `convert-from-ocds` does not cover all mappings, nor does it perform currency conversions. Mappings that `convert-from-ocds` does not cover are shown in *italics*.

Mapping codelists

Mappings that depend on the specific classification or codelist used in the OCDS data are not documented in detail, as they can differ by publisher. For example, mapping to the OC4IDS projectSector codelist.

Alternative mappings

Some mappings offer alternatives in case the primary mapping isn't available. For example, for OCDS data in which `planning.project.title` isn't available, you can set the project `title` based on the `tender.title`.

In order to provide analysts with additional context, some alternative mappings copy additional fields which don't appear in OC4IDS schema. You ought to remove these fields if you plan to publish your OC4IDS data.

OCDS extensions

Some mappings use fields from OCDS extensions. In these cases, the names of extensions are noted in parentheses; where possible, alternative mappings are provided that use only fields from the core OCDS schema.

Handling conflicts and duplicates

Implementations of the mapping ought to give consideration to:

- OCDS data that contains fields that differ between contracting processes but map to a single field in OC4IDS: for example, where `planning.project.title` differs for two contracting processes that relate to the same project, but OC4IDS has a single `title` field at the project level.

- OCDS data that contains multiple `Organization` objects with the same `.role` that map to a single field in OC4IDS: for example, where a contracting process has two `Organization`s with the 'procuringEntity' role, but OC4IDS has a single `.summary.tender.procuringEntity` field at the contract level.

- Checking for duplicates when copying objects from OCDS. For example, checking whether an `Organization` object has already been copied before copying it again.

- Handling identifier conflicts when copying objects from OCDS. For example, where two contracting processes both contain a `Document` with the same `.id`.

Read the `convert-from-ocds` transformation notes to learn about how OC4IDS Kit handles the above scenarios.

Handling multiple currencies

Some mappings involve converting values in OCDS, which can be in different currencies, to a base currency.

Implementations which include multiple currencies ought to give consideration to value dating. One approach is to use the compiled release's `date`.

Mapping

Project level

Identification

Preparation

Project completion

Reactive disclosures

Identification and preparation

Completion

Process level

The mappings in this section relate to the `contractingProcesses` section of the OC4IDS schema, unless otherwise specified.

Procurement

Implementation

Disclosures in the implementation section of the CoST IDS relate to changes to a contract's value, duration or scope that were made after the contract was awarded.

If OCDS data is available, these changes can be determined by comparing the most recent OCDS release to a compiled release created from all prior releases (to better understand these concepts, refer to the OCDS documentation). The specific fields to monitor for changes between releases are described in the mapping table below.

In some cases, OCDS data might include an explanation of changes in the relevant `amendments` block. In other cases, the reason might need to be manually entered.

Reactive disclosures

Procurement

Contract

Implementation

1.6 Support

If you are planning to publish or use data using the OC4IDS then the Open Contracting Partnership and CoST - the Infrastructure Transparency Initiative can provide free-of-charge support.

We can:

- Help you identify approaches for converting data from your existing systems to OC4IDS;

- Suggest existing tools and services which might help you publish or use OC4IDS data;

- Provide guidance on mapping your data structures to the standard;

- Give you feedback on draft data files, and support with validation of your data;

Use the following email addresses to request support:

- opencode@infrastructuretransparency.org for support from CoST - the Infrastructure Transparency Initiative

- data@open-contracting.org for support from the Open Contracting Partnership.

Contributing

Developers, or those wishing to provide technical input to OC4IDS, can go straight to the GitHub repository.