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# **Open Contracting for Infrastructure Data Standards Toolkit**

***Release 0.9.3***

**Open Contracting Partnership**

**Feb 16, 2023**



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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 should 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 required 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 should 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:

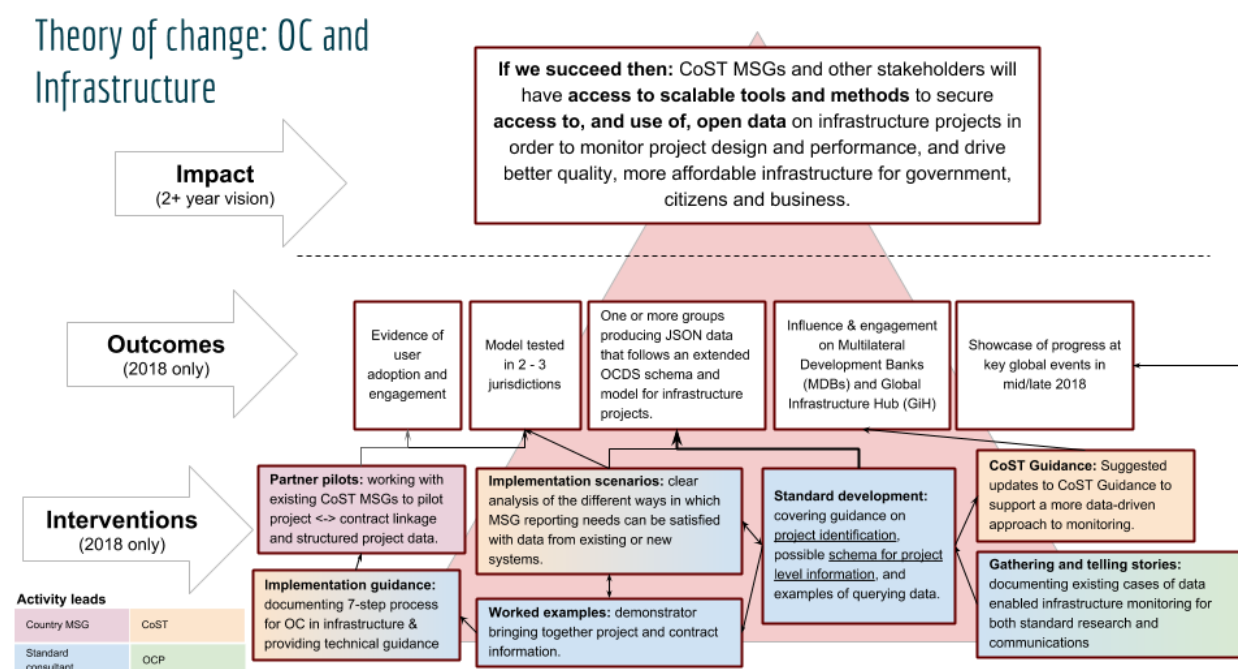
- Contracts are issued for planning, design and preparation work;
- Contracts are issued for construction of infrastructure;
- Contracts are issued for monitoring construction implementation.

When open contracting principles and practices are put in place, data about these contracting processes, and documents associated with them, should 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 required 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.

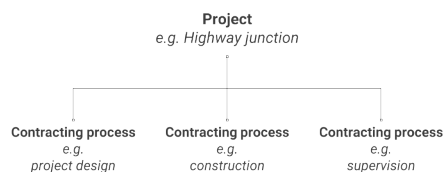
Publishing standardized data makes using data easier, for example to compare data across projects. It also supports the development of reusable tools and methodologies.

### 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 should not be applied 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 recommended in 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?

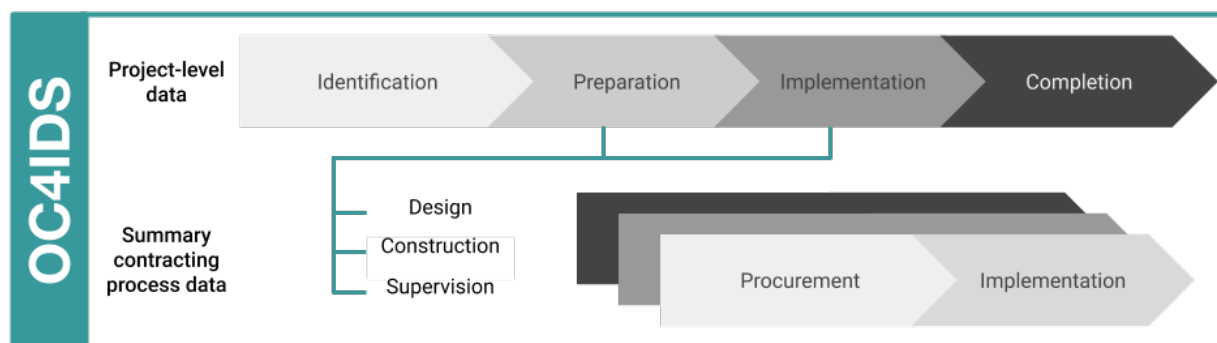


Summary contracting process data relates to the contracts used to deliver the project and covers the following stages:

- **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.

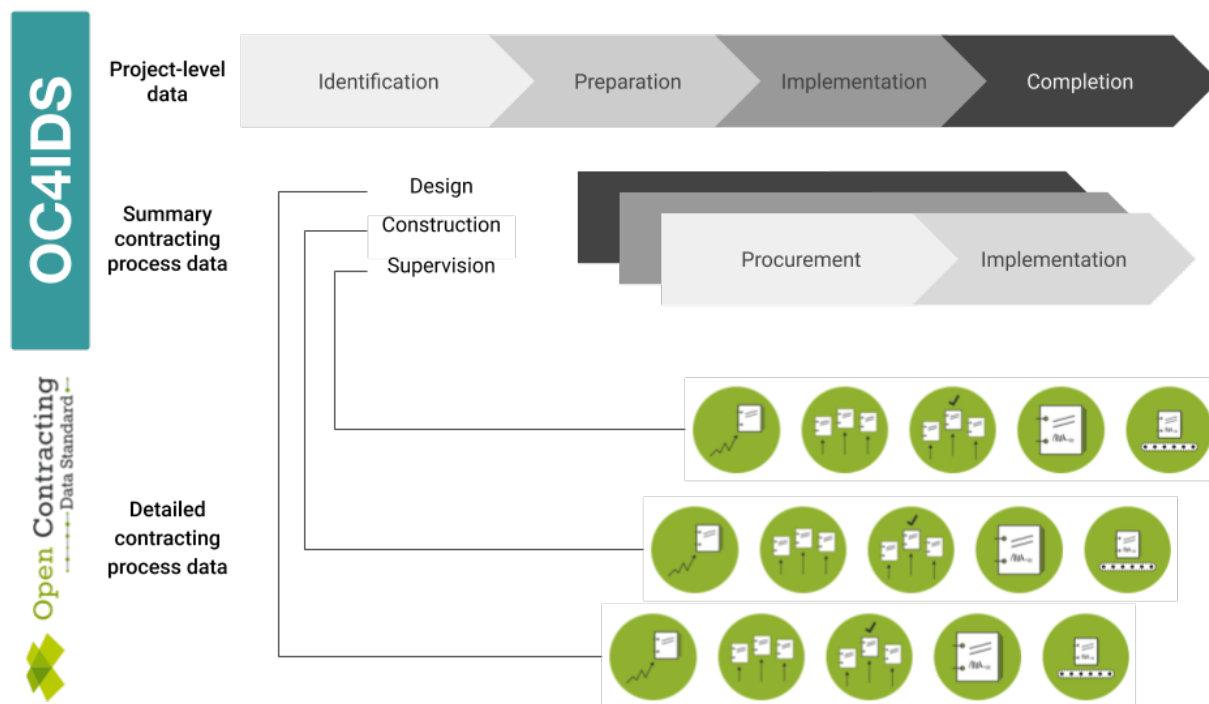
## 1.2.4 How does detailed contracting data fit in?

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 required for infrastructure project monitoring.

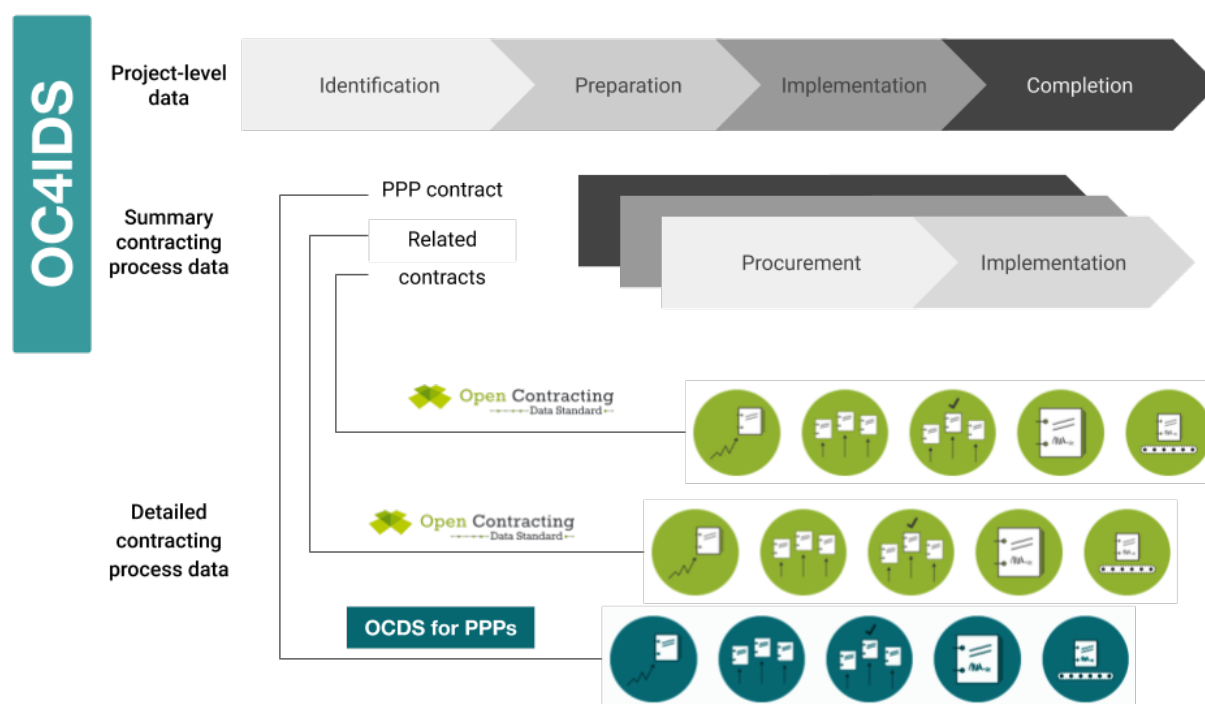
### Tool

OCDS Kit's `convert-to-oc4ids` 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 recommended in the CoST IDS.

Review the [CoST IDS mapping](#) to learn how to publish each element of the CoST IDS using OC4IDS.

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### Are you ready to start using OC4IDS?

Complete the [OC4IDS scoping template](#) and share it with the [OC4IDS helpdesk](#).

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## 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 file and codelist files, and reference documentation is available for the [schema](#) and [codelists](#).

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 of the building blocks from the Open Contracting Data Standard; these are introduced in the [Getting Started](#) section of the [OCDS](#) documentation.

### 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

The tables below describe each of the fields and objects in OC4IDS. To see how they fit together, consult the *[schema browser](#)*.

### Project

### ContractingProcess

### ContractingProcessSummary

### LinkedRelease

### Components

### Address

We use properties from [schema.org](http://schema.org) and vCard for address components. In the event source data cannot be broken down into these parts, data **SHOULD** contain at least a `streetAddress` value and postal code.

When working with data, users should be aware that addresses may not always be broken down using all the properties the specification provides.

### BudgetBreakdown

A budget breakdown is provided through an array of `BudgetBreakdown` objects, each of which represents budget for a particular period, from a particular source, or a combination of the two.

See the [documentation of the OCDS Budget Breakdown extension](#) for more details of this data model. `BudgetBreakdown` can also be extended further to include budget classifications data following the pattern described in the [OCDS Budgets and Spend extension](#).

### Classification

A classification consists of an identifier for the codelist (the `scheme`) and a code from that codelist (the `id`), and then a human-readable label for the classification (the `description`).

For example:

```
{
  "scheme": "COFOG",
  "id": "05.2",
  "description": "Waste water management"
}
```

## ContactPoint

### Document

For each document the following structured information may be provided.

### 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.

### Location

A project may have one or more locations. Locations may be expressed in a number of different ways, using one or more of:

- A point location or geometry (e.g. trace of a road, or polygon giving the boundary of a site);
- A gazetteer entry (e.g. town name);
- An address.

### Modification

For each modification, the following structured information may be provided.

### Organization

For each organization, provide as much structured data as you can.

### OrganizationReference

### 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 should be made as to the relevant time to attach (e.g. start of the day; end of the working day etc.).

### 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.

### RelatedProject

A reference to a project related to the same set of infrastructure assets as the current project.

### Transaction

A spending transaction related to a contracting process.

### Value

All values should be published along with their currency using the following structure.

## 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 can 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](#).

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### 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.

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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

### 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

#### [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 ocids-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 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.

### 1.3.7 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 should 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 should be disclosed using the `planning/project/id` field, introduced in the [Project extension](#).

The `planning/budget/projectID` field in OCDS should **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 should 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 should be re-used to create globally unique project identifiers for use in OC4IDS. Otherwise, if local project identifiers are not available, publishers may 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 must 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](mailto:data@open-contracting.org) with the name of your organization and a brief description of your OC4IDS implementation.

---

### Existing prefixes

The list below shows all registered prefixes. You can [download the list as CSV](#).

## 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 should 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 may require support from a technical expert. You can also contact the OC4IDS Helpdesk ([data@open-contracting.org](mailto: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.

---

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 should 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:

```
http://{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:

```
http://{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

---

**Tip:** [Flatten-tool](#) can be used to convert between JSON and spreadsheet/CSV format data.

---

Refer to the [OCDS documentation](#) for more information on providing data in multiple formats.

### 1.4.3 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, should be published under the same `ocid`, and in a structured open data format;
- It should 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 may require support from a technical expert. You can also contact the OC4IDS Helpdesk ([data@open-contracting.org](mailto: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

---

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

## (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 may be possible to search for tenders with a particular set of item classifications, or from a particular buyer.

This may be possible by downloading and filtering spreadsheets of the data, or may require 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.

```
-- 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.
```

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```
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 should 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 may be looking for contracts from the same buyer, mentioning similar words or localities.

---

You may not be able to fill all the project-level details from the contracts, and may 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 should 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 may be possible to compare the total sum of all contract spending against the original anticipated contract spend, and overall project budget. It may 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 of explanation.

In other cases, you may 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.

### 1.4.4 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 may be needed to determine whether documents linked to from the data contain the required information.

---

### Getting started

*The following steps may require support from a technical expert. You can also contact the OC4IDS Helpdesk ([data@open-contracting.org](mailto: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 should 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
```

### 1.4.5 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 should 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](#).

### 1.4.6 Worked example

The *OC4IDS schema* sets out the structure and format of an OC4IDS JSON file.

This worked example is a filled-in example OC4IDS JSON file representing a fictional, completed infrastructure project to upgrade a motorway in the UK.

The full OC4IDS JSON file for the worked example is [available to download](#).

---

**Tip:** You can also download a [blank example OC4IDS JSON file](#) as a starting point for your implementation.

---

This page contains excerpts from the example JSON file, showing how key sections of the schema ought to be populated.

#### Overview

An OC4IDS document is made up of a number of sections. These include:

- **Project package** - a container for the data of multiple projects, as well as metadata about the publication.
- **Project data** - for each project including:
  - **Project metadata** - contextual information about the project such as title, description, location and status.
  - **Budget** - information about the projected costs or allocated budget for the project.
  - **Parties** - information about the organizations and other participants involved in the project.
  - **Documents** - documents and documentation relating to the project.
  - **Contracting processes** - information about related contracting processes for different aspects of the project.
  - **Completion** - information on the final scope, duration and costs for the project.

## Sections

### Project package

The project package serves as a container for the data of multiple projects, through its `projects` array. It also provides metadata concerning all the data it contains, including the publisher, schema version, data license and publication policy.

```
{
  "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"
        }
      ]
    }
  ]
}
```

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```

    ],
    "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",
          "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"
      }
    ]
  }

```

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```

    ],
    "budget": {
      "amount": {
        "amount": 40000000,
        "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": {
            "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"
          }
        }
      ]
    }
  }
}

```

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```

    ]
  },
  "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"
      },
      "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": {

```

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```

        "name": "Kim Designer",
        "email": "kim.designerd@alexperthsmart.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"
    ]
}

```

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```

    },
    {
      "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",

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```

        "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"
    },
    {
      "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."
    }
  ],

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```

    {
      "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 establish 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"
    }
  ],
  "forecasts": [
    {
      "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"
          }
        },
        {
          "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",

```

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```

        "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"
        }
      },
      {
        "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-alb1c1-a410a80d-adc8-11e6-9901-0019b9f3037b",
    "summary": {

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```

"ocid": "ocds-alb1c1-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": "Al 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": "Al 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"
},
"transactions": [
  {
    "id": "ocds-alb1c1-a410a80d-adc8-11e6-9901-
↪0019b9f3037b-00001-1",

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```

    "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": {
      "id": "GB-COH-11111111",
      "name": "Al Expert Smart Moto Design"
    },
    "uri": "https://openspending.org/motorways-uk-
    spending/transaction/xyz123"
  },
  "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": [

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        "implementation",
        "contractTermination"
      ],
      "url": "https://www.example.com/releases/ocds-cdf-pc10010.
↪ json"
    }
  ],
  },
  {
    "id": "ocds-alb1c1-370ad85a-097f-4b8c-adf8-09d840c7c48b",
    "summary": {
      "ocid": "ocds-alb1c1-370ad85a-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-2222222"
          }
        ],
        "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-2222222"
        }
      ],
      "contractValue": {
        "amount": 4900000,
        "currency": "GBP"
      },
      "contractPeriod": {
        "startDate": "2017-02-24T00:00:00Z",

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        "endDate": "2018-10-10T00:00:00Z"
      },
      "finalValue": {
        "amount": 4900000,
        "currency": "GBP"
      },
      "documents": [
        {
          "id": "alblcl-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/alblcl-spats-2-
↪ 033-completion.html",
          "datePublished": "2018-12-10T16:45:00Z",
          "format": "text/html"
        }
      ]
    },
    "releases": [
      {
        "id": "ocds-alblcl-spats-2-033e",
        "date": "2017-03-02T17:14:37Z",
        "tag": [
          "tender"
        ],
        "url": "https://example.com/releases/ex-alblcl--033e.json"
      },
      {
        "id": "ocds-alblcl-spats-2-033f",
        "date": "2017-05-02T17:14:37Z",
        "tag": [
          "award"
        ],
        "url": "https://example.com/releases/ex-alblcl--033f.json"
      },
      {
        "id": "ocds-alblcl-spats-2-033g",
        "date": "2017-07-02T17:14:37Z",
        "tag": [
          "implementation"
        ],
        "url": "https://example.com/Published/releases/ex-alblcl--
↪ 033g.json"
      },
      {
        "id": "ocds-alblcl-spats-2-033h",
        "date": "2018-12-10T14:45:00Z",
        "tag": [
          "contractTermination"
        ],
        "url": "https://example.com/releases/ex-alblcl--033h.json"
      }
    ]
  },
  {

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```

    "id": "ocds-alb1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b",
    "summary": {
      "ocid": "ocds-alb1c1-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"
      },
      "documents": [
        {
          "id": "alb1c1-construction-excavation-report",
          "documentType": "physicalProgressReport",

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```

        "title": "Report on construction excavation",
        "description": "A report on the construction at
↪ Junction 5 where excavation damaged a watercourse.",
        "url": "https://example.com/Published/alb1c1-
↪ 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": "alb1c1-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/alb1c1-
↪ 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-alb1c1-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-alb1c1-c9b14c18-adc8-11e6-9901-
↪ 0019b9f3037b-cdfpc3b0015"
    }
]

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```

    },
    {
      "id": "m27-4-5-construction-modification-003",
      "date": "2018-04-01T15:15:00Z",
      "description": "Contract value increased from ↪
290000000 to 352500000 to include repairing a watercourse",
      "rationale": "Excavation damaged a watercourse. ↪
Construction budget extended for repairs.",
      "type": "value",
      "releaseID": "ocds-alb1c1-c9b14c18-adc8-11e6-9901-
↪0019b9f3037b-cdfpc3b0015",
      "oldContractValue": {
        "amount": 290000000,
        "currency": "GBP"
      },
      "newContractValue": {
        "amount": 352500000,
        "currency": "GBP"
      }
    }
  ]
},
"releases": [
  {
    "id": "ocds-alb1c1-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-alb1c1-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-alb1c1-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-alb1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-
↪cdfpc3b0014",
    "date": "2015-12-16T15:15:00Z",

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```

        "tag": [
            "implementation"
        ],
        "url": "https://example.com/Published/releases/5553-b58.
↪ json"
    },
    {
        "id": "ocds-alb1c1-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-alb1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-
↪ cdfpc3b0016",
        "date": "2018-12-10T09:15:00Z",
        "tag": [
            "contractTermination"
        ],
        "url": "https://example.com/Published/releases/5553-b60.
↪ 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."
}
}
]
}

```

## License

The `license` field ought to contain a link to the license that applies to the data in the package. Further information about licensing can be found in the [OCDS licensing guidance](#).

## Publication policy

The `publicationPolicy` field ought to contain a link to a data user guide. For more information about what to include in a publication policy, refer to [Data user guide](#).

## Project information

A project package can contain information about multiple infrastructure projects. Each infrastructure project is represented as an entry in the `projects` array. The example contains information about one infrastructure project.

```
{
  "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",
```

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```

        "endDate": "2040-07-01T00:00:00Z",
        "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"
                ]
            },
            "address": {
                "streetAddress": "Windlesham Interchange, Old Road",
                "locality": "Windlesham",
                "region": "Westshire",
                "postalCode": "WS21 6RZ",
                "countryName": "United Kingdom"
            },
            "uri": "https://www.openstreetmap.org/node/1638915385"
        }
    ],
    "budget": {
        "amount": {

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        "amount": 400000000,
        "currency": "GBP"
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      "approvalDate": "2015-06-24T00:00:00Z",
      "budgetBreakdown": [
        {
          "id": "2016",
          "description": "2016 budget allocation",
          "amount": {
            "amount": 100000000,
            "currency": "GBP"
          },
          "period": {
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            "endDate": "2016-12-31T00:00:00Z"
          },
          "sourceParty": {
            "name": "Motorways UK",
            "id": "GB-GOR-XX1234"
          }
        },
        {
          "id": "2017",
          "description": "2017 budget allocation",
          "amount": {
            "amount": 200000000,
            "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": 100000000,
            "currency": "GBP"
          },
          "period": {
            "startDate": "2018-01-01T00:00:00Z",
            "endDate": "2018-12-31T00:00:00Z"
          },
          "sourceParty": {
            "name": "Motorways UK",
            "id": "GB-GOR-XX1234"
          }
        }
      ]
    },
    "parties": [

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    {
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      "id": "GB-GOR-XX1234",
      "identifier": {
        "scheme": "GB-GOR",
        "legalName": "Motorways UK",
        "id": "XX1234",
        "uri": "https://government-organisation.register.gov.uk/
↪records/XX1234"
      },
      "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@alexperthsmart.com",
        "telephone": "+44 0123 456 7890",

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        "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",

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    "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"
      }
    ]
  }
}

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    ]
  },
  "publicAuthority": {
    "name": "Motorways UK",
    "id": "GB-GOR-XX1234"
  },
  "documents": [
    {
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      "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",

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        "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 establish 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"
    },
    ],
    "forecasts": [
        {
            "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"
                    }
                },
                {
                    "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"
                    }
                }
            ]
        }
    ]
}

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    ]
  },
  "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"
          }
        },
        {
          "id": "2",
          "measure": "75",
          "unit": {
            "name": "percent",
            "id": "P1",
            "scheme": "UNCEFACT"
          },
          "period": {
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            "endDate": "2018-08-07T00:00:00Z"
          }
        },
        {
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          "measure": "100",
          "unit": {
            "name": "percent",
            "id": "P1",
            "scheme": "UNCEFACT"
          },
          "period": {
            "startDate": "2018-12-01T00:00:00Z",
            "endDate": "2018-12-01T00:00:00Z"
          }
        }
      ]
    }
  ],
  "contractingProcesses": [
    {
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      "summary": {
        "ocid": "ocds-a1b1c1-a410a80d-adc8-11e6-9901-0019b9f3037b",
        "externalReference": "2016-SMP-M75-J4_J5-design",
        "nature": [

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        "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"
      },
      "transactions": [
        {
          "id": "ocds-a1b1c1-a410a80d-adc8-11e6-9901-
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          "source": "https://openspending.org/motorways-uk-
↪spending/",
          "date": "2017-08-07T00:00:00Z",

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        "value": {
          "amount": 1950000,
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        },
        "payer": {
          "id": "GB-GOR-XX1234",
          "name": "Motorways UK"
        },
        "payee": {
          "id": "GB-COH-11111111",
          "name": "Al Expert Smart Moto Design"
        },
        "uri": "https://openspending.org/motorways-uk-
→spending/transaction/xyz123"
      },
      "documents": [
        {
          "id": "alblcl-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/alblcl-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"
          ],

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        "url": "https://www.example.com/releases/ocds-cdf-pc10010.
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    }
  ],
  },
  {
    "id": "ocds-alb1c1-370ad85a-097f-4b8c-adf8-09d840c7c48b",
    "summary": {
      "ocid": "ocds-alb1c1-370ad85a-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-2222222"
      }
    ],
    "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-2222222"
    }
  ],
  "contractValue": {
    "amount": 4900000,
    "currency": "GBP"
  },
  "contractPeriod": {
    "startDate": "2017-02-24T00:00:00Z",
    "endDate": "2018-10-10T00:00:00Z"
  },
  "finalValue": {

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        "amount": 4900000,
        "currency": "GBP"
      },
      "documents": [
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          "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/alblcl-spats-2-
↪033-completion.html",
          "datePublished": "2018-12-10T16:45:00Z",
          "format": "text/html"
        }
      ]
    },
    "releases": [
      {
        "id": "ocds-alblcl-spats-2-033e",
        "date": "2017-03-02T17:14:37Z",
        "tag": [
          "tender"
        ],
        "url": "https://example.com/releases/ex-alblcl--033e.json"
      },
      {
        "id": "ocds-alblcl-spats-2-033f",
        "date": "2017-05-02T17:14:37Z",
        "tag": [
          "award"
        ],
        "url": "https://example.com/releases/ex-alblcl--033f.json"
      },
      {
        "id": "ocds-alblcl-spats-2-033g",
        "date": "2017-07-02T17:14:37Z",
        "tag": [
          "implementation"
        ],
        "url": "https://example.com/Published/releases/ex-alblcl--
↪033g.json"
      },
      {
        "id": "ocds-alblcl-spats-2-033h",
        "date": "2018-12-10T14:45:00Z",
        "tag": [
          "contractTermination"
        ],
        "url": "https://example.com/releases/ex-alblcl--033h.json"
      }
    ]
  },
  {
    "id": "ocds-alblcl-c9b14c18-adc8-11e6-9901-0019b9f3037b",
    "summary": {
      "ocid": "ocds-alblcl-c9b14c18-adc8-11e6-9901-0019b9f3037b",

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        "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"
        },
        "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.",

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```

        "url": "https://example.com/Published/alb1c1-
↪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": "alb1c1-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/alb1c1-
↪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-alb1c1-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-alb1c1-c9b14c18-adc8-11e6-9901-
↪0019b9f3037b-cdfpc3b0015"
    },
    {
        "id": "m27-4-5-construction-modification-003",

```

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```

        "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-alb1c1-c9b14c18-adc8-11e6-9901-
↵0019b9f3037b-cdfpc3b0015",
        "oldContractValue": {
            "amount": 29000000,
            "currency": "GBP"
        },
        "newContractValue": {
            "amount": 35250000,
            "currency": "GBP"
        }
    }
}
},
"releases": [
    {
        "id": "ocds-alb1c1-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-alb1c1-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-alb1c1-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-alb1c1-c9b14c18-adc8-11e6-9901-0019b9f3037b-
↵cdfpc3b0014",
        "date": "2015-12-16T15:15:00Z",
        "tag": [
            "implementation"
        ],

```

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```

        "url": "https://example.com/Published/releases/5553-b58.
↪ json"
    },
    {
        "id": "ocds-alblcl-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-alblcl-c9b14c18-adc8-11e6-9901-0019b9f3037b-
↪ cdfpc3b0016",
        "date": "2018-12-10T09:15:00Z",
        "tag": [
            "contractTermination"
        ],
        "url": "https://example.com/Published/releases/5553-b60.
↪ 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."
}
}
]
}

```

Each project object contains the following sections:

## Project metadata

This section provides contextual information about the infrastructure project, including:

- `id` for the project identifier. To make the project identifier globally unique, a project identifier prefix needs to be added to a local identifier for the project. Project identifier prefixes are assigned by the OC4IDS Helpdesk. For more information on project identifiers, refer to the [project identifiers guidance](#).
- `status` from the [Project Status codelist](#). In this example, the project status is 'completed'.
- `type` from the [Project Type codelist](#). In this example, the project type is 'expansion'.
- `sector` from the [Project Sector codelist](#). In this example, the sector is 'transport.road', the parent sector 'transport' is also included in the sector list, in line with the guidance in the schema.
- one or more `relatedProjects`, to reference other projects that are related to the same set of infrastructure assets, as [outlined in the schema reference](#). In the `relatedProject` example below, a reference is made to the original project that initially constructed the motorway junctions, which are now being upgraded by this project.
- one or more `locations`, which can be expressed in a variety of ways as [outlined in the schema reference](#). In this example, one location is given: a motorway junction, using a point location, a gazetteer entry and an address.

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

```
[
  {
    "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"
  },
]
```

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```

{
  "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 and budget breakdown

The `budget` section can be used to provide the overall budget for the project, and its `budgetBreakdown` array can be used to provide a breakdown of the budget by period and/or funding source.

In the budget example below, the overall budget for the infrastructure project covers 3 years and is broken down into amounts per year, with £10,000,000 allocated in 2016 – as highlighted in the `budgetBreakdown` example.

```

{
  "amount": {
    "amount": 40000000,
    "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": {
        "startDate": "2016-01-01T00:00:00Z",
        "endDate": "2016-12-31T00:00:00Z"
      },
      "sourceParty": {

```

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```

        "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"
      }
    }
  ]
}

```

```

{
  "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"
  }
}

```

## Parties (organizations)

The `parties` array is used to provide details about organizations involved in the infrastructure project and their roles. Organization references elsewhere in the data refer back to entries in this section.

In the party example below, details are given about the fictional Motorways UK entity, which is referred to from the `sourceParty` section in the `budgetBreakdown` example above, using the `name` and `id` from the entry in the `parties` array.

```
{
  "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"
  },
  "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"
    }
  ]
}
```

## Public authority

The `publicAuthority` field indicates the project owner: the unit, body or department within a government that is tendering and contracting the project. It refers to an entry in the `parties` array, as described above.

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

## Documents

The `documents` array is used to provide information and links to documents and documentation relating to the infrastructure project. During different phases of the project, different document types are expected.

In the document example below, an environmental impact assessment is provided. The `documentType` field is used to categorize the document against the *Document Type codelist*.

```
{
  "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."
}
```

## Forecasts and metrics

Publish structured data on planned and actual physical and financial progress using `Metric` objects in the `forecasts` (planned progress) and `metrics` (actual progress) arrays. Refer to the *implementation progress reports documentation* for further detail.

In the example below, you can compare the planned forecasts/observations for 75% of physical progress completed with the actual metrics/observations for 75% of physical progress completed (note the difference in period).

```
{
  "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": "2",
  "measure": "75",
  "unit": {
    "name": "percent",
    "id": "P1",
    "scheme": "UNCEFACT"
  },
  "period": {
```

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```

    "startDate": "2018-08-07T00:00:00Z",
    "endDate": "2018-08-07T00:00:00Z"
  }
}

```

## Contracting processes

The `contractingProcesses` array is used to provide information about each contracting process associated with the project, including summary information, a list of modifications and a list of OCDS releases.

In the `contractingProcess` example below, information is given about a contracting process for the design of the motorway upgrade, with one related document in the `documents` array (a tender notice) and two related OCDS releases (one for the tender and one for the contract award).

```

{
  "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",

```

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```

        "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"
    },
    "transactions": [
      {
        "id": "ocds-a1b1c1-a410a80d-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": {
          "id": "GB-COH-11111111",
          "name": "A1 Expert Smart Moto Design"
        },
        "uri": "https://openspending.org/motorways-uk-spending/transaction/
↪xyz123"
      },
    ],
    "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"
        ],
      },
    ],
  ],
}

```

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```

        "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"
      }
    ]
  }
}

```

## Modifications

Each contracting process includes a `modifications` array which is used to list any changes to the duration, price, scope or other significant aspect of the contracting process.

In the modification example below, a change in duration is shown, using the `oldContractPeriod` and `newContractPeriod` fields.

```

{
  "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"
  }
}

```

## Completion

The `completion` section provides final details of the scope, duration and cost for the project.

Since in this example there were variations to related contracting processes, the `finalValue` of the project exceeds its original planned budget.

```
{
  "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."
}
```

## 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 should 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 may 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 should 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 should 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 required 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:*

```
{
  "metrics": [
    {
      "id": "physicalProgress",
      "title": "Physical progress",
      "observations": [
        {
          "id": "1",
          "measure": "4.04",
          "unit": {
```

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```

        "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": {

```

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```

        "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:*

```

{
  "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"
          }
        }
      ],
    },
    {

```

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```

    "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

OCDS Kit's `convert-to-oc4ids` command is a command-line tool and reference implementation for converting OCDS data to OC4IDS format.

`convert-to-oc4ids` covers most mappings in the following categories:

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

However, `convert-to-oc4ids` does not cover all mappings, nor does it perform currency conversions. Mappings which `convert-to-oc4ids` 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 may differ by publisher. For example, mapping to the OC4IDS `projectSector` codelist.

## Alternative mappings

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

In order to provide analysts with additional context, alternative mappings may copy additional fields which don't appear in OC4IDS schema. You should 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 should 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 `Organizations` 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-to-oc4ids` [transformation notes](#) to learn about how OCDS Kit handles the above scenarios.

## Handling multiple currencies

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

Implementations which include multiple currencies should 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 may include an explanation of changes in the relevant `amendments` block. In other cases, the reason may 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](mailto:opencode@infrastructuretransparency.org) for support from CoST - the Infrastructure Transparency Initiative
- [data@open-contracting.org](mailto:data@open-contracting.org) for support from the Open Contracting Partnership.

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## Contributing

Developers, or those wishing to provide technical input to OC4IDS, can go straight to the [GitHub repository](#).

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