```
Start  →  Receive software      →  Test & Implement     →  Provide evidence
           requirements             required                for implemented
                                    capabilities            functionalities      →
```
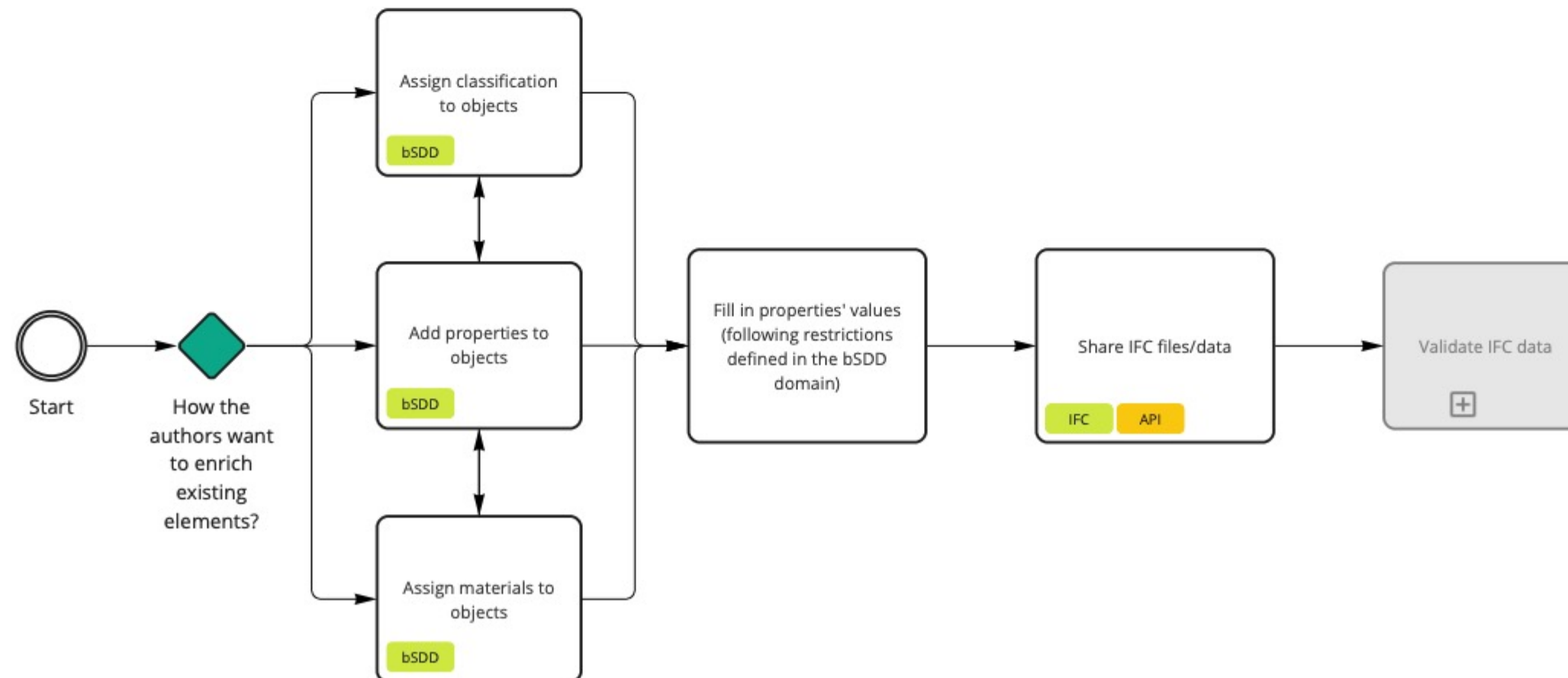
**Simple version**
bSDD can be used to further enrich objects with additional: (1) classifications, (2) properties, and (3) materials. This figure group the three alternatives in one generic task.

Assign classification / properties / materials to elements
bSDD

NO

Start

Do the authors just need to fill-in values for existing properties?

YES

Fill in properties' values (following restrictions defined in the bSDD domain)

Share IFC files/data
IFC  API

Validate IFC data

**LEGEND**

| | |
|---|---|
| IFC | Industry Foundation Classes |
| bSDD | buildingSMART Data Dictionary |
| IDS | Information Delivery Specification |
| UCMS | Use Case Management Service |
| BCF | BIM Collaboration Format |
| VS | (bSI) Validation Service |
| API | openCDE API |

| | |
|---|---|
| | Ready to use |
| | Under development |
| | Not developped |

**Articulated version**
bSDD can be used to further enrich objects with additional: (1) classifications, (2) properties, and (3) materials. This figure distinguish the three alternatives, allowing to follow different paths.
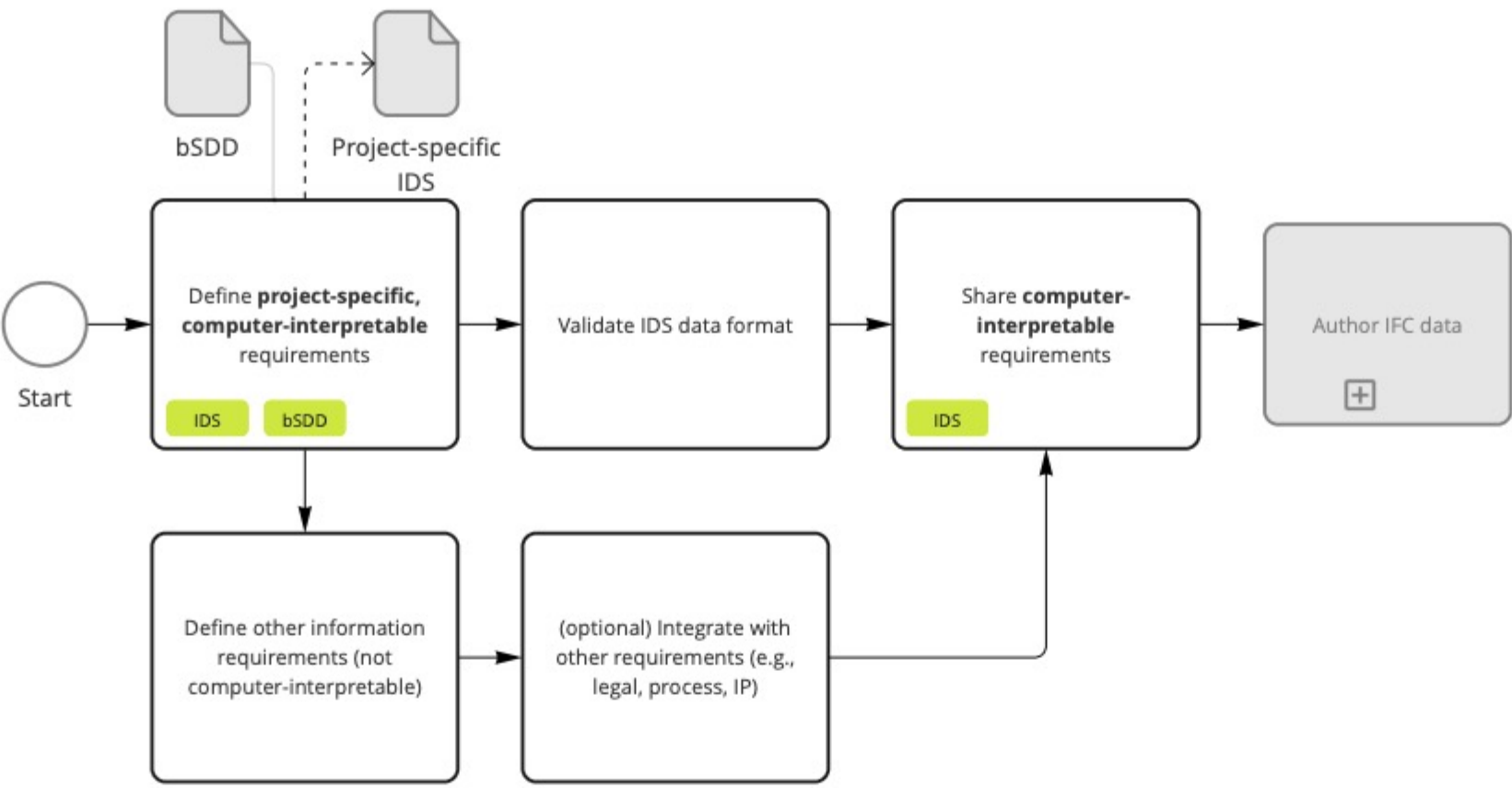
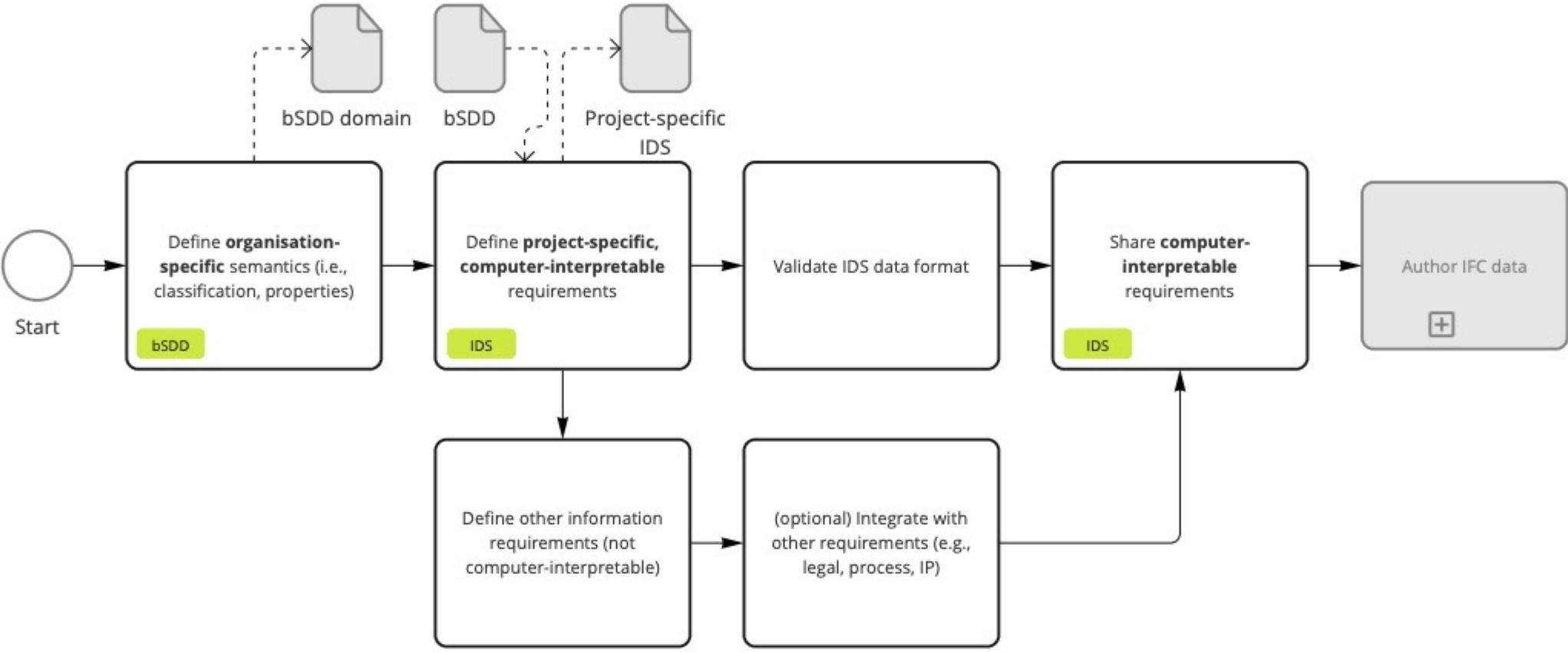Assign classification to objects
bSDD

Start

How the authors want to enrich existing elements?

Add properties to objects
bSDD

Assign materials to objects
bSDD

Fill in properties' values (following restrictions defined in the bSDD domain)
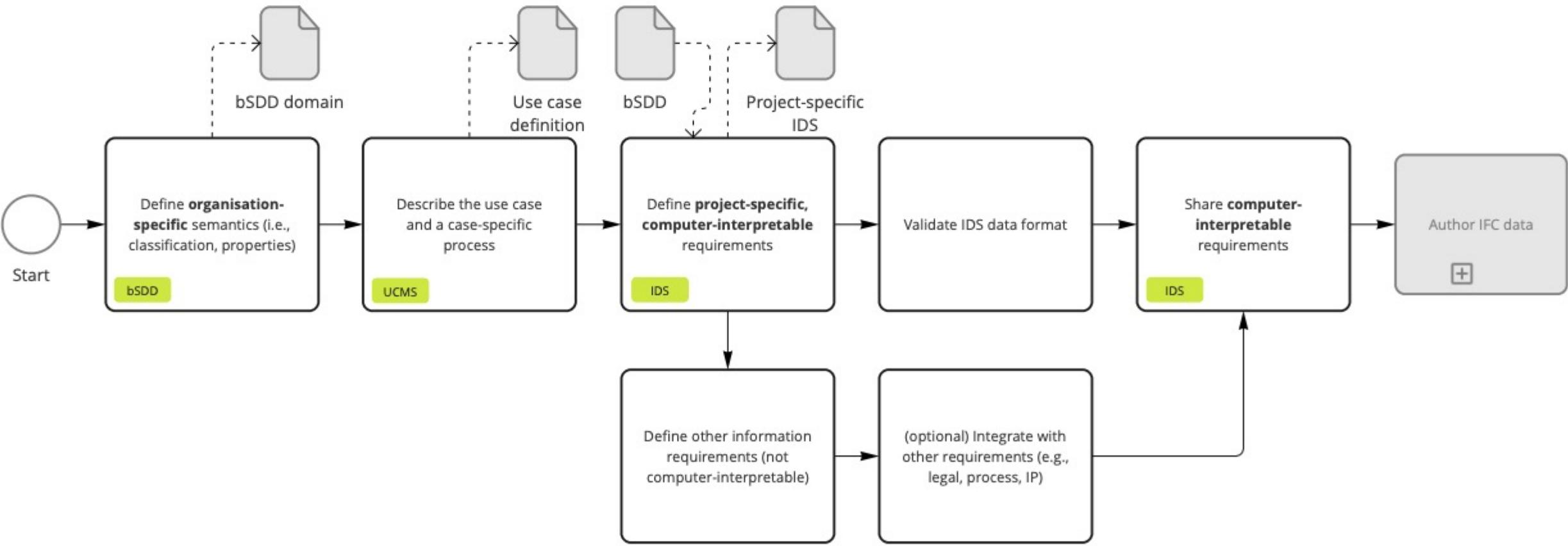
Share IFC files/data
IFC  API

Validate IFC data

**Single-project option**
You have project-specific information requirements that can be described using IDS

bSDD · Project-specific IDS

Start → Define **project-specific, computer-interpretable** requirements [IDS] [bSDD] → Validate IDS data format → Share **computer-interpretable** requirements [IDS] → Author IFC data

Define other information requirements (not computer-interpretable) → (optional) Integrate with other requirements (e.g., legal, process, IP)

**Multi-projects option**
You have multi-projects requirements that you want to reuse, and can be stored in bSDD

bSDD domain · bSDD · Project-specific IDS
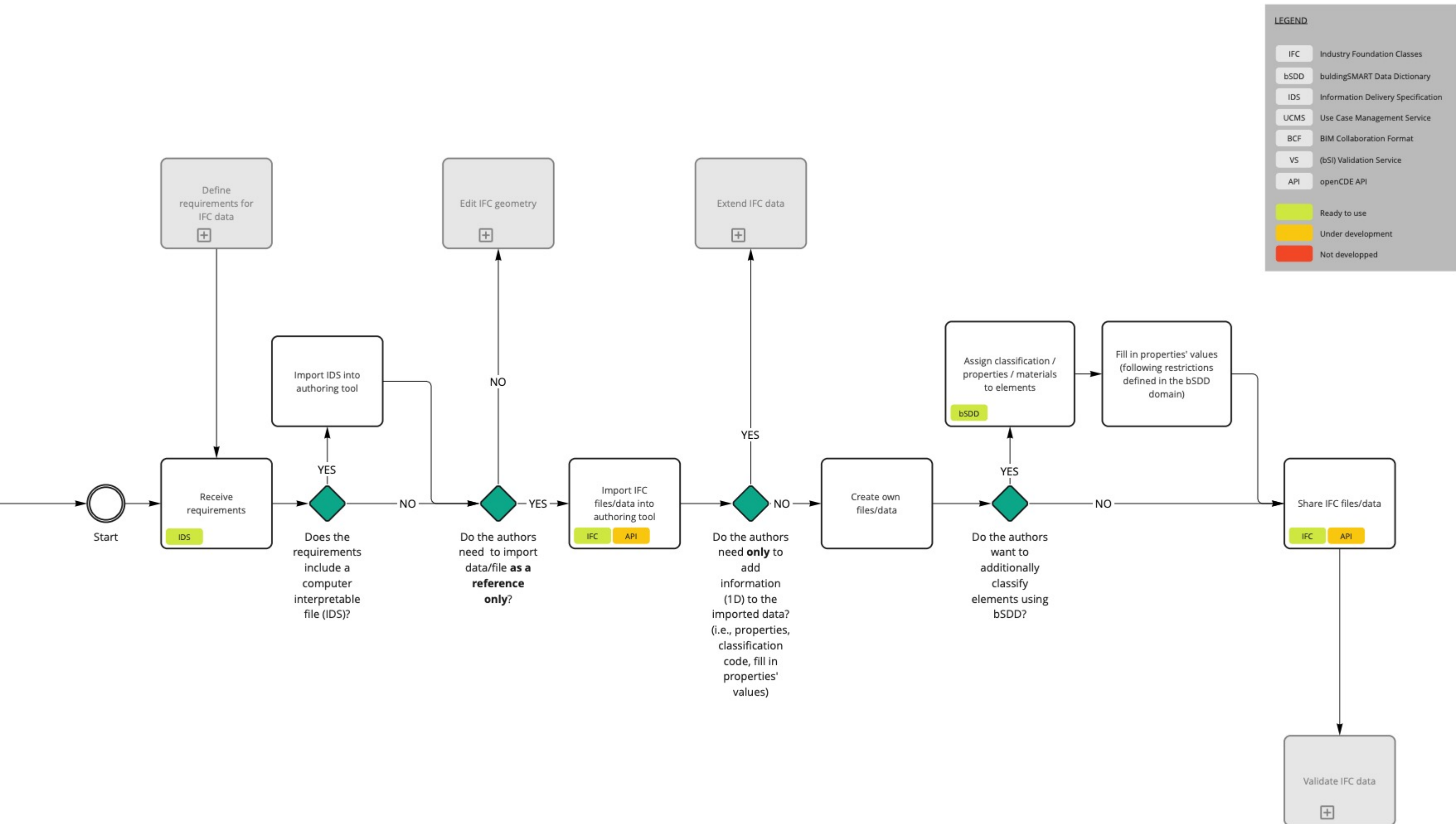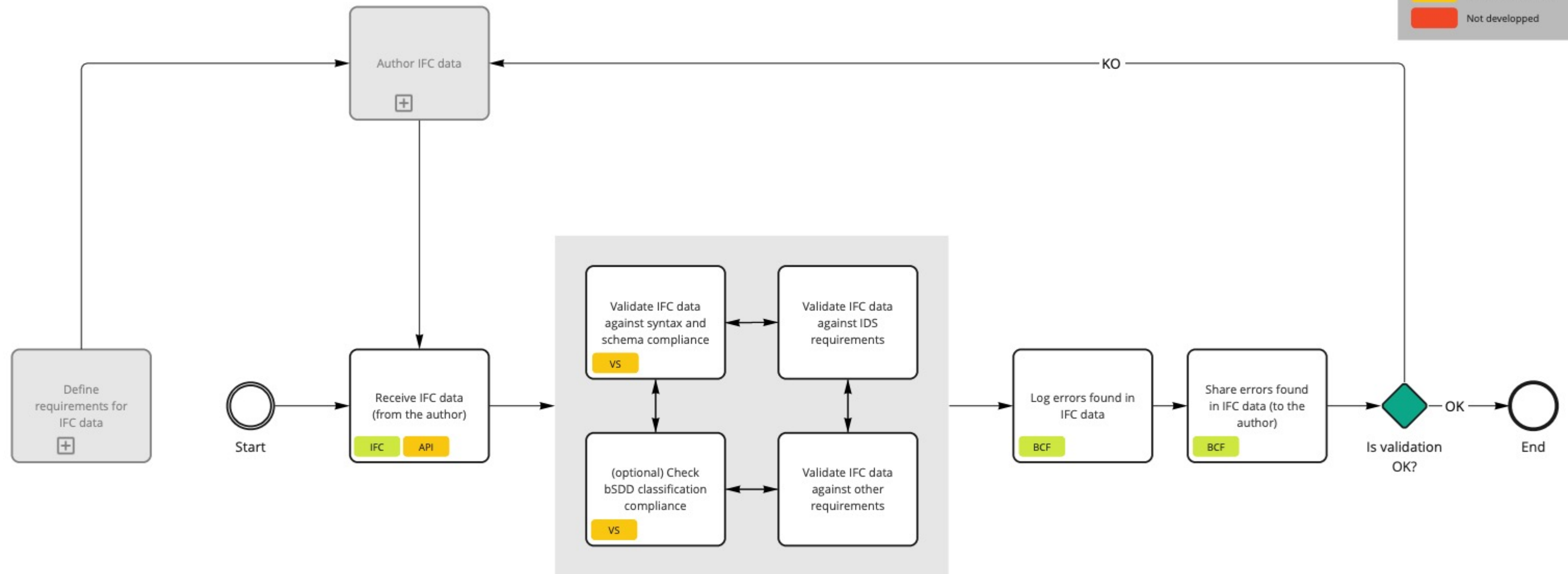
Start → Define **organisation-specific** semantics (i.e., classification, properties) [bSDD] → Define **project-specific, computer-interpretable** requirements [IDS] → Validate IDS data format → Share **computer-interpretable** requirements [IDS] → Author IFC data

Define other information requirements (not computer-interpretable) → (optional) Integrate with other requirements (e.g., legal, process, IP)

**Use case option**
You need to formalise your use case & process, along with your information requirements

bSDD domain · Use case definition · bSDD · Project-specific IDS

Start → Define **organisation-specific** semantics (i.e., classification, properties) [bSDD] → Describe the use case and a case-specific process [UCMS] → Define **project-specific, computer-interpretable** requirements [IDS] → Validate IDS data format → Share **computer-interpretable** requirements [IDS] → Author IFC data

Define other information requirements (not computer-interpretable) → (optional) Integrate with other requirements (e.g., legal, process, IP)

**LEGEND**

| | |
|---|---|
| IFC | Industry Foundation Classes |
| bSDD | buldingSMART Data Dictionary |
| IDS | Information Delivery Specification |
| UCMS | Use Case Management Service |
| BCF | BIM Collaboration Format |
| VS | (bSI) Validation Service |
| API | openCDE API |

| | |
|---|---|
| (green) | Ready to use |
| (orange) | Under development |
| (red) | Not developped |

Define requirements for IFC data

Edit IFC geometry

Extend IFC data

Assign classification / properties / materials to elements
bSDD

Fill in properties' values (following restrictions defined in the bSDD domain)

Import IDS into authoring tool

Start

Receive requirements
IDS

Does the requirements include a computer interpretable file (IDS)?

YES

NO

Do the authors need to import data/file **as a reference only**?

YES

NO

Import IFC files/data into authoring tool
IFC  API

Do the authors need **only** to add information (1D) to the imported data? (i.e., properties, classification code, fill in properties' values)

YES

NO

Create own files/data

Do the authors want to additionally classify elements using bSDD?

YES

NO

Share IFC files/data
IFC  API

Validate IFC data

**LEGEND**

| | |
|---|---|
| IFC | Industry Foundation Classes |
| bSDD | buildingSMART Data Dictionary |
| IDS | Information Delivery Specification |
| UCMS | Use Case Management Service |
| BCF | BIM Collaboration Format |
| VS | (bSI) Validation Service |
| API | openCDE API |

- Ready to use
- Under development
- Not developped

Author IFC data

KO

Define requirements for IFC data

Start

Receive IFC data (from the author)
IFC    API

Validate IFC data against syntax and schema compliance
VS

Validate IFC data against IDS requirements

(optional) Check bSDD classification compliance
VS

Validate IFC data against other requirements

Log errors found in IFC data
BCF

Share errors found in IFC data (to the author)
BCF

Is validation OK?

OK

End

# Which bSI solution can I use for my task?

Solutions functionalities

| | UCM | bSDD | IDS | VS | IFC / openCDE API | BCF | Other tools |
|---|---|---|---|---|---|---|---|
| **Define requirements for IFC data** | Describe the use case and a case-specific process `UCMS` | Define **organisation-specific** semantics (i.e., classification, properties) `bSDD`<br><br>Define **project-specific, computer-interpretable** requirements `bSDD` | Define **project-specific, computer-interpretable** requirements `IDS`<br><br>Share **computer-interpretable** requirements `IDS` | | | | (optional) Integrate with other requirements (e.g., legal, process, IP)<br><br>Define other information requirements (not computer-interpretable)<br><br>Validate IDS data format |
| **Author IFC data** / **Extend IFC data** | | Assign classification / properties / materials to elements `bSDD` | Receive requirements `IDS` | Check bSDD classification compliance `bSDD` | Import IFC files/data into authoring tool `IFC` `API`<br><br>Share IFC files/data `IFC` `API` | | Fill in properties' values (following restrictions defined in the bSDD domain)<br><br>Create own IFC files/data<br><br>Import IDS into authoring tool |
| **Validate IFC data** | | | | Validate IFC data against syntax and schema compliance `VS`<br><br>(optional) Check bSDD classification compliance `VS` | Receive IFC data (from the author) `IFC` `API` | Log errors found in IFC data `BCF`<br><br>Share errors found in IFC data (to the author) `BCF` | Validate IFC data against IDS requirements<br><br>Validate IFC data against other requirements |