

Inuk Registry Procedures Manual

This document defines the rules for managing the Inuk Registry and the technical protocols that ensure the integrity, traceability, and uniqueness of the carbon credits issued.

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1. Technology Architecture and Serialization

The Inuk Registry relies on a public blockchain infrastructure (Gnosis) to guarantee the immutability of data.

1.1 Uniqueness and Serialization of Units (NFTs)

Each metric ton of CO₂ avoided is converted into a unique digital token, technically defined as an NFT (Non-Fungible Token).

Unique Identifier: Each unit has a unique identifier generated by the blockchain in the form of an alphanumeric hash. This identifier is publicly available on the Gnosis block explorer and allows the token's complete history to be traced.



Example of a token identifier:

0x6e2509891a21406527e36b26eb335e43744c5cacea5ec031f227474ffca5b50e

Metadata Enrichment: Each token contains comprehensive metadata, including:

- The project ID, name, location, technology type
- The exact production period (vintage year)
- The specific conversion factor (CF)
- The creation timestamp



Metadata Example:

```
aco2Tokens: [
  {
    endDate: "2023-02-16T00:00:00.000Z",
    meanConversionFactor: 0.51,
    productionEquivalent: 68769158.82,
    productionUnit: "KWH",
    quantity_gco2eq: 35072271,
    startDate: "2023-02-15T00:00:00.000Z",
    tokenId: "zzz_1",
  },
  {
    endDate: "2023-03-09T00:00:00.000Z",
    meanConversionFactor: 0.45,
    productionEquivalent: 67692731.11,
    productionUnit: "KWH",
    quantity_gco2eq: 30461729,
    startDate: "2023-03-08T00:00:00.000Z",
    tokenId: "zzz_2",
  },
],
location: {
  countryCode: "FR",
  place: "Paris, IdF",
},
name: "My Project",
producer: {
  location: {
    countryCode: "FR",
```

Retirement Certificate: Upon retirement, the Registry automatically generates an immutable digital certificate linked to the corresponding blockchain transaction. The certificate provides verifiable evidence of the retirement and includes, at a minimum:

- The identity of the retiring entity;
- The project name, location and technology;
- The quantity of ICC retired;
- The vintage year (production period);
- The mitigation mechanism (GHG avoidance);
- The retirement date;
- The unique blockchain transaction hash;

- The serial numbers (unique identifiers) of the retired carbon credits.

The certificate is permanently linked to the underlying blockchain records and remains accessible to the credit holder, ensuring complete transparency and independent verification of the retirement event.



Complete and verifiable history: This serialization ensures that each carbon credit can be traced from its creation ("mint") to its permanent retirement ("burn"), preventing any double counting or resale after use.

1.2 Blockchain Infrastructure

The Inuk Registry uses the Gnosis blockchain, a public, Ethereum-compatible blockchain. This choice ensures:

- **Decentralization:** Gnosis is secured by over 100,000 independent validators, making it one of the most distributed and censorship-resistant networks in the entire Web3 ecosystem.
- **Transparency:** Gnosis makes its governance public; its protocols are open source and verifiable in real time.
- **Immutability:** Strict compatibility with Ethereum makes transactions and smart contracts technically impossible to alter or censor.
- **Interoperability:** Compatibility with existing Ethereum standards
- **Low carbon footprint:** Thanks to its Proof-of-Stake mechanism and ReFi compatibility, Gnosis reduces its energy consumption by 99.9% compared to traditional blockchains, ensuring a near-zero carbon footprint.

The Gnosis blockchain plays a specific role in the Inuk Standard's verification infrastructure. It is essential to distinguish between what is automated on-chain and

what is performed off-chain.

1.2.1 On-Chain Operations (Blockchain)

The following operations are immutably recorded on the blockchain:

- **ACO2 Token Registration (Mint):** Each token created receives a unique identifier (transaction hash) and permanently recorded metadata.
- **Linking an ACO2 Token to an ADDI Token (Stacked):** Immediately after its creation, the credit must be linked to an Additionality project.
- **Transfer and Destruction (Burn):** Token transfers between addresses and token burns are time-stamped and irreversible.
- **ADDI Generation and Status:** The lifecycle of ADDI tokens (Minted → Stacked → Burnt) is fully tracked on-chain.
- **Audit Trail:** The complete history of each token is publicly viewable on the Gnosis block explorer.

1.2.2 Off-Chain Operations (IGLU Infrastructure)

The following operations are performed off-chain, on the IGLU infrastructure:

- **Production Data Collection:** Raw data (kWh, recovered heat, etc.) is received via API or manual import.
- **Algorithmic Verification:** The system generates automatic alerts if the data shows anomalies (values that are too high or too low), but this verification is not recorded on the blockchain.
- **Human validation:** Review by carbon engineers and confirmation by the project owner are carried out via the IGLU interface.

1.3 Immutability and Modifiability

Data Status	Modifiable?	Proof Required for Modification
Unverified Output	YES	None
Verified Production (verified, not minted)	YES	Tangible evidence (screenshots, dashboards)
Minted (tokenized)	NO	Immutable on the blockchain

Key Principle: Once data is minted on the blockchain, it cannot be modified or deleted. If an error is detected later, the Standard applies correction mechanisms (see) without altering the blockchain history.

2. The dual financing model (ACO2 & ADDI)

The Inuk Standard stands out for its dual financing model, where a carbon credit simultaneously supports two types of projects: an operational project (linked to 1 ACO2 token) and a project seeking funding (linked to 1 ADDI token).

2.1 The ACO2 Token: Remuneration for Operational Projects

The ACO2 token represents the volume of CO2eq actually avoided by an already operational project.

- **Ex-post Issuance:** It is issued solely based on actual, measured physical data (kWh produced, tonnes of low-carbon cement sold, etc.).
- **Impact:** This revenue stream directly remunerates the producer for the GHG emissions avoided by their project.
- **Standard:** 1 ACO2 = 1 tonne of CO2eq avoided

2.2 The ADDI Token: Financing Future Projects (Additionality)

The ADDI token ensures the traceability of additionality financing for projects that would not have come to fruition without this financial support.

- **Creation upon Retirement:** An ADDI token is generated during the sale and burning (destruction) of an ACO2 token.
- **Value:** 1 ADDI token = €1
- **Allocation:** The financial value generated is specifically allocated to an "additional" project (often a future project or one in the development phase). This ensures that the investment triggers the creation of a new GHG (Greenhouse Gas) emission reduction project that would not have been economically viable otherwise.

A single project developer can initiate multiple projects, which may be eligible for ACO2 and/or ADDI tokens respectively.

2.3 Additionality Mechanism and Eligibility Criteria

2.3.1 Double additionnality mechanism

Unlike traditional standards that assess additionality and measurability on a single project, the Inuk Standard ensures:

- That measurability is genuine through the operational project (this project must meet the criteria defined in the Standard Rules)
- That additionality is genuine, through:
 - The additional component of the operational project
 - The financing of a fully additional project—that is, one that has not yet been implemented.

This mechanism, which governs the operation of the Inuk Standard, ensures:

- Avoiding assumptions about avoided emissions, since they have already occurred
- Enabling new capacity to be developed.

Two distinct projects are therefore compensated with each purchase of an Inuk Carbon Credit.

2.3.2 ADDI Project Eligibility Criteria

To be eligible for funding via ADDI tokens, a project must meet the following criteria:

Mandatory Criteria:

- **Compliance with the Inuk Standard's GENERAL CRITERIA:** The project must satisfy all general criteria defined in the Inuk Standard Rules (eligibility, scope, leakage, reality, and effectiveness, etc.)
- **Project Status: Seeking Funding:** The project must not have been launched as of the date of ADDI token allocation. This includes:
 - Projects in the development phase that have not yet begun
 - Projects requiring funding to overcome an economic barrier
 - Projects whose economic viability depends on carbon revenue
- **Proof of Financial Barrier:** The project sponsor must demonstrate that the project is not economically viable without carbon financing support (feasibility analysis, investment barriers, IRR calculation with and without carbon credits)

2.3.3 Selection and Allocation Process

The selection of ADDI projects is carried out by the carbon credit purchaser:

1. **Selection by the Client:** At the time of purchase, the client freely selects one operational project (compensated via ACO₂) and one project seeking funding

(compensated via ADDI) from the IGLU catalog. Both projects receive the same level of compensation.

2. **Value of the ADDI Token:** One ADDI token is equivalent to one euro (1 ADDI = 1€). The number of ADDI tokens generated is therefore directly proportional to the amount allocated to the additional project.
3. **Transparency and Traceability:** The allocation is recorded on the blockchain via the ADDI token's "Stacked" status, ensuring an tamper-proof record of the funding.

2.4 Concrete Example of an ACO2/ADDI Transaction

To illustrate how the dual-reward system works, here is a numerical example based on the actual rates of the Inuk Standard

2.4.1 Scenario: Purchase of 100 Carbon Credits from the Narbosol project

Project in operation: Narbosol (solar thermal; project developer: Newheat)

List price: €31 excl. tax per tCO₂e avoided

Item	Amount
Total price paid by the customer	€3,100 excl. tax
Operational project portion (ACO ₂) - Narbosol	€1,240
Additional project portion (ADDI)	€1,240
Inuk Commission	€620

2.4.2 Token Flows

Step 1 - ACO₂ Generation: IGLU receives production data from the Narbosol project (MWh); this data is verified (see the Verification Process), and then used to mint ACO₂ tokens

Step 2 - ACO₂ Sale and Destruction: The customer purchases the credits. The ACO₂ tokens (i.e., 100 ACO₂ tokens) are destroyed (burned).

Step 3 - ADDI Generation: 1,240 ADDI tokens are automatically created (1 ADDI = 1€).

Step 4 - ADDI Allocation: The customer selects an additional project from the catalog. The 1,240 ADDI tokens are assigned ("stacked") to that project.

Step 5 - Payment and Destruction: Once the €1,240 has been paid to the additional project's project owner, the ADDI tokens are destroyed ("burned"). Payments for the additionality are made quarterly to the project owner, based on the ADDI tokens stacked on the project.

2.4.3 Blockchain Traceability

Each step is permanently recorded on the Gnosis blockchain:

Transaction Hash: A hash is a unique digital fingerprint (a 64-character alphanumeric identifier) automatically generated by the blockchain for each transaction. It serves as irrefutable proof of the transaction and allows any third party to verify the authenticity of the transaction on the Gnosis block explorer.

- **ACO2 transaction hash:** automatically generated when the token is minted (created) or burned (withdrawn).
 - Example: `0x6e2509891a21406527e36b26eb335e43744c5cacea5ec031f227474ffca5b50e`
- **ADDI transaction hash:** automatically generated when the token is created, assigned ("Stack"), or destroyed ("Burn").
- **Precise timestamp:** Each transaction is precisely dated and irreversibly recorded.

3. Technologies, Methodologies, and Projects

3.1 Technologies Covered by the Inuk Standard

For more information on the technologies covered by the Inuk Standard, refer to the section

3.2 Management of Methodologies

All issues related to methodologies are presented in the Procedure Manual

3.3 Applying the Methodology to a Specific Project

3.3.1 Development of the Project Design Document (PDD)

The **Project Design Document (PDD)** is the central document that describes how a specific project applies a given methodology. It translates the methodology's requirements into project-specific parameters, calculations, and monitoring procedures.

The PDD serves as the reference document for:

- Validation (before project registration)
- Verification (during the production phase)
- Third-party audits (VVB/IE reviews)

3.3.2 Structure of the PDD

Section	Content
Project Description	Location, technology, scope, baseline scenario
Methodology Application	Which methodology is used, and how it applies to this specific context
Baseline & Additionality	Demonstration that the project reduces emissions beyond business-as-usual
Emission Reductions Calculation	FC (Conversion Factor), activity data, formulas applied
Key Impact Indicators (KII)	Metrics to Monitor Climate Performance
Monitoring Plan	Data collection procedures, frequency, responsibilities
Risk Assessment	Potential Risks and Mitigation Measures
Stakeholder Consultation Results	URL link to the public consultation report and feedback summary
Analysis of externalities	Positive and negative impacts on selected SDGs (see)

Optional :

Local Benefit-Sharing Plan: Formal documentation of benefits or compensations allocated to local stakeholders.

3.3.3 Definition of Key Impact Indicators (KII)

Key Impact Indicators (KII) are quantifiable metrics used to monitor a project's climate performance over time. They are defined in the PDD and tracked throughout the production phase to ensure the project delivers the expected emission reductions.

KII serve as the basis for:

- Annual verification by VVB/IE
- Token issuance calculations (ACO2 and ADDI)
- Compliance with methodology requirements

Structure of a KII

Component	Description
Indicator Name	Clear label (e.g., "Electricity Generated")
Unit	Measurement unit (e.g., kWh, metric tons, km)
Data Source	Data source (e.g., smart meter, invoices, weighbridge)

Component	Description
Monitoring Frequency	How often data is collected (e.g., daily, monthly, annually)
Responsible Party	Who collects and reports the data
Calculation Method	Formula or procedure used to calculate the indicator

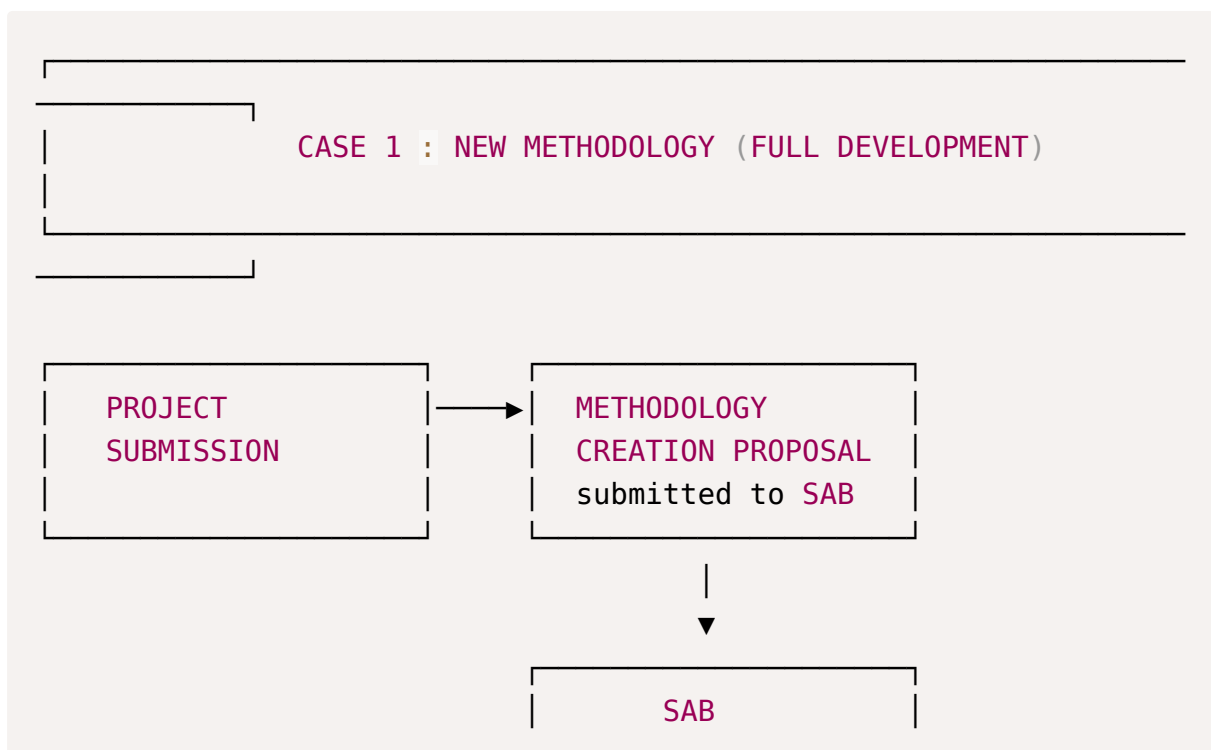
Examples of specific KIs for an anaerobic digestion project

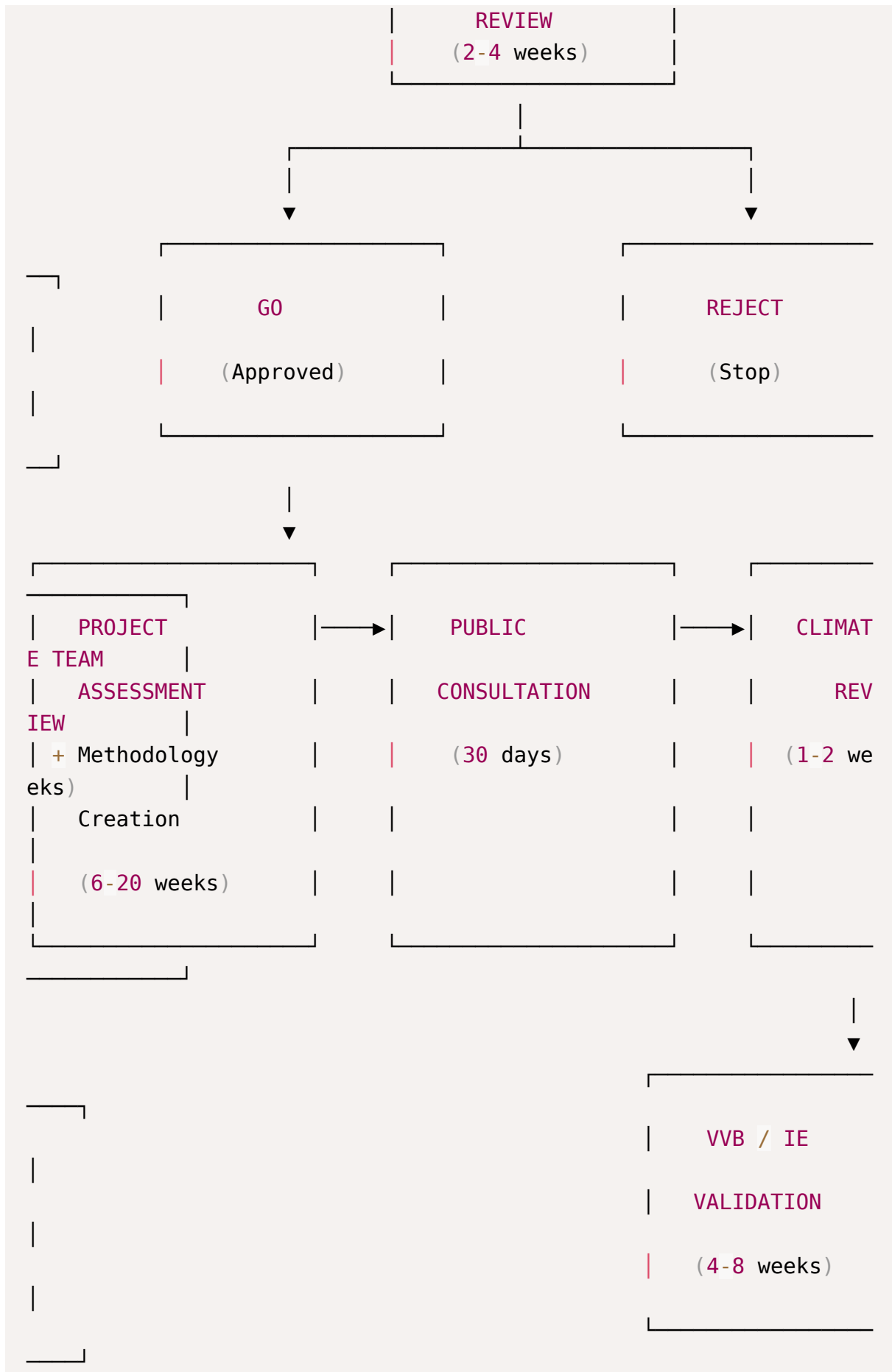
KI	Description	Unit	Data Source	Frequency
Biogas Produced	Total volume of biogas generated	m ³	Flow Meter	Daily
Methane Content	Percentage of methane in biogas	%	Gas Analyzer	Monthly
Processed Feedstock	Amount of agricultural waste treated	tons	Weighbridge records	Monthly
Baseline Methane Emissions	Methane that would have been released without the project	tCH ₄	IPCC formulas, feedstock type	Annual

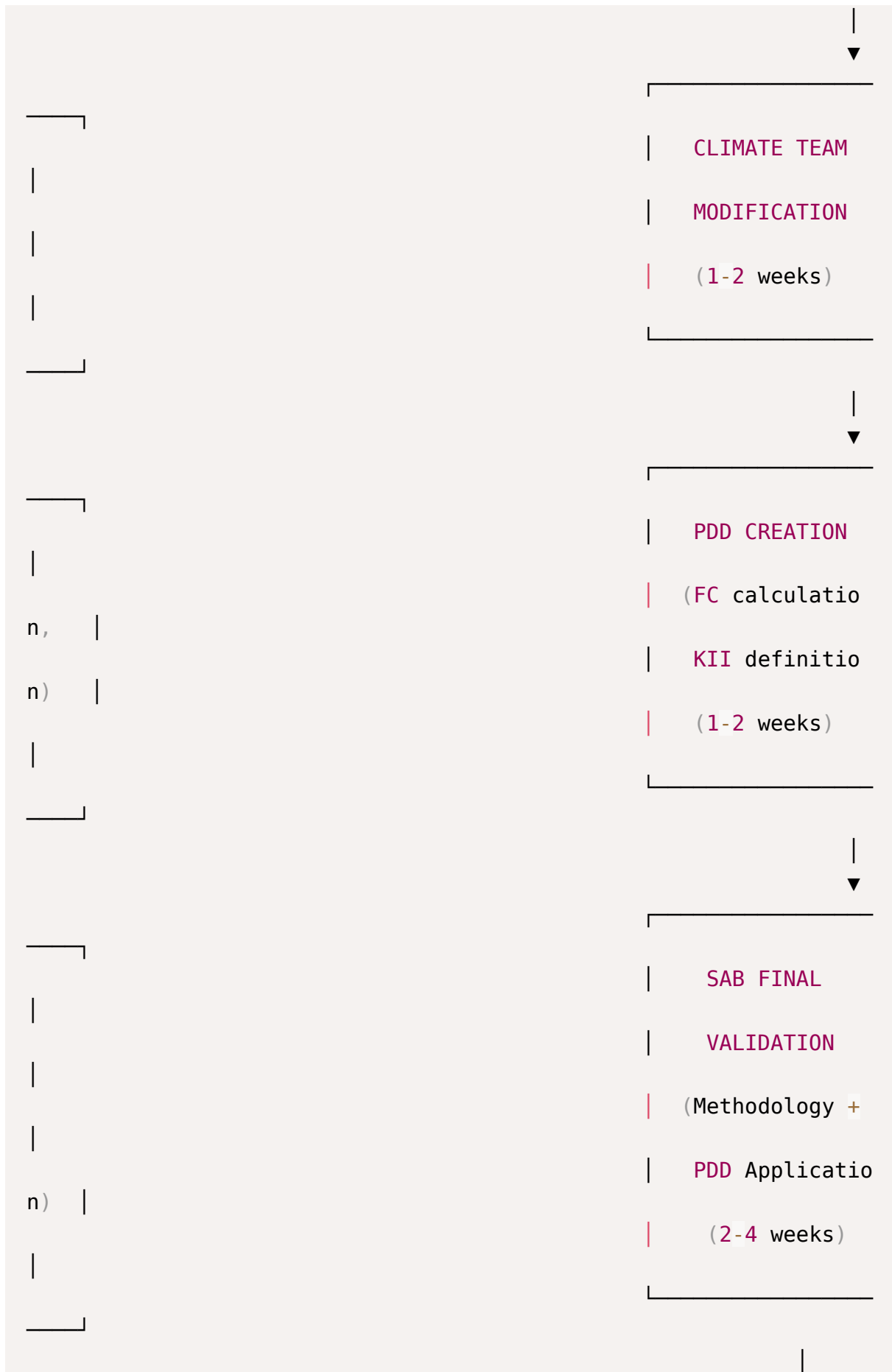
3.4 Project Integration and Methodological Application

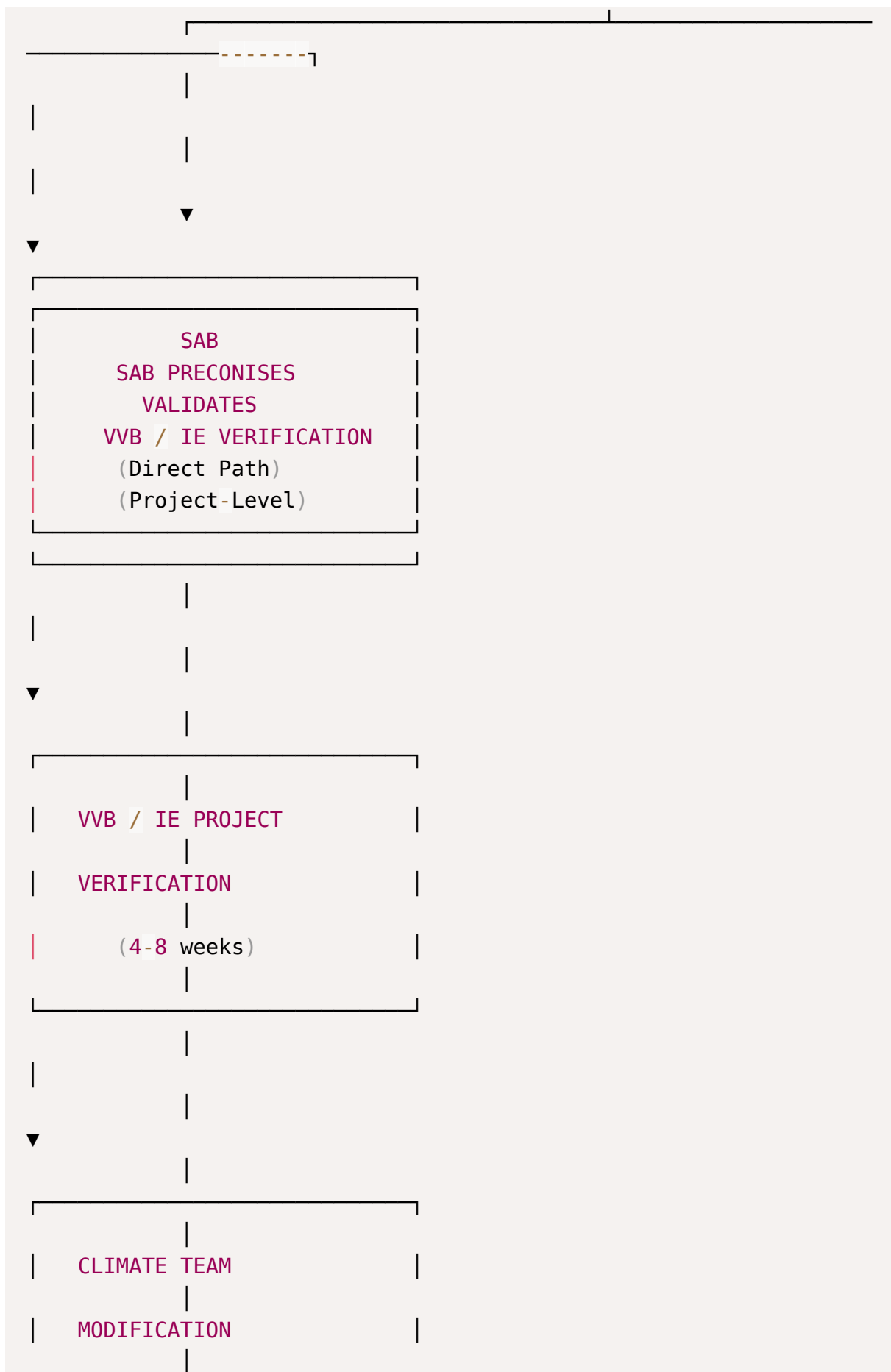
Case A - New Methodology:

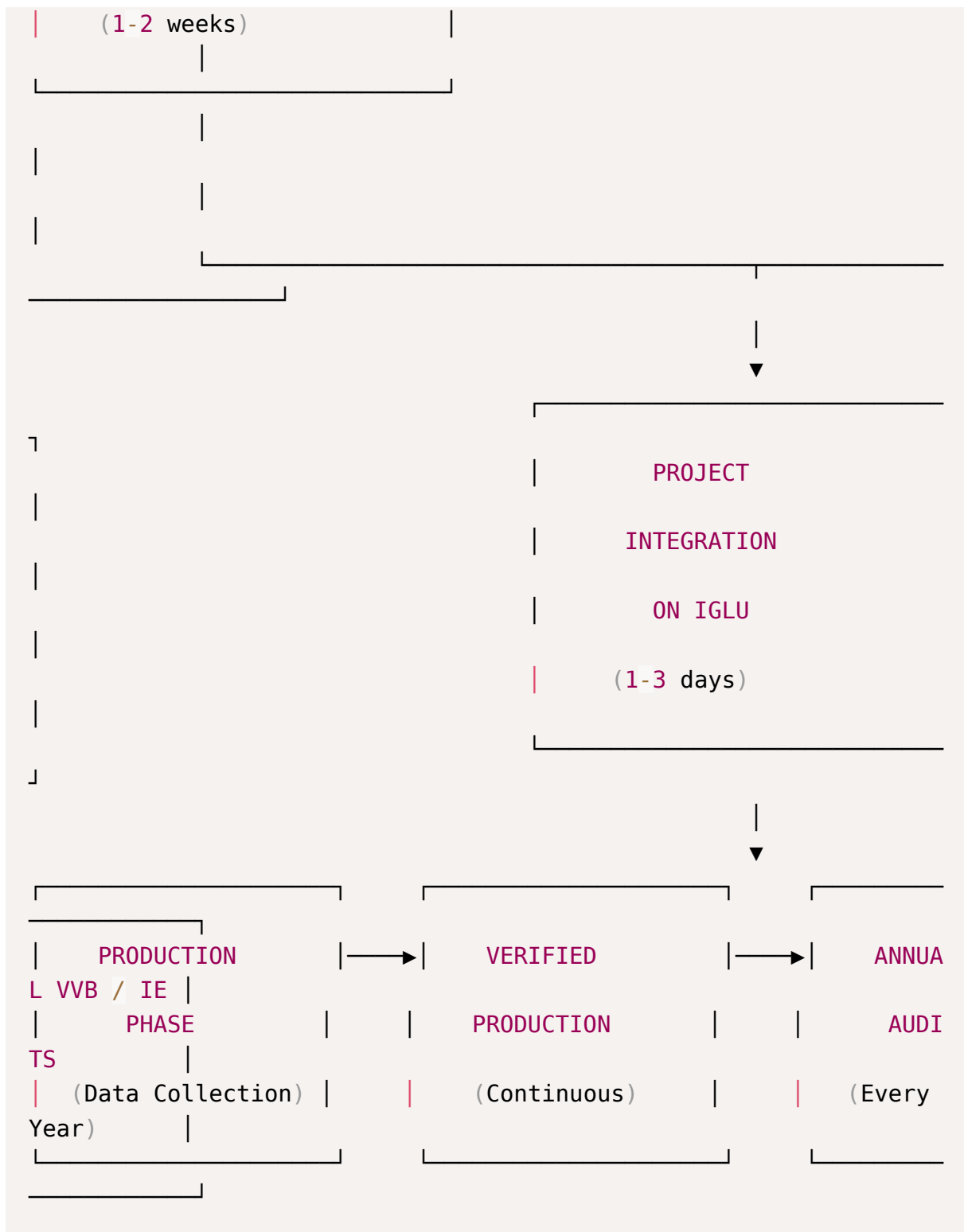
More information on the process of creating a new methodology can be found in the section:



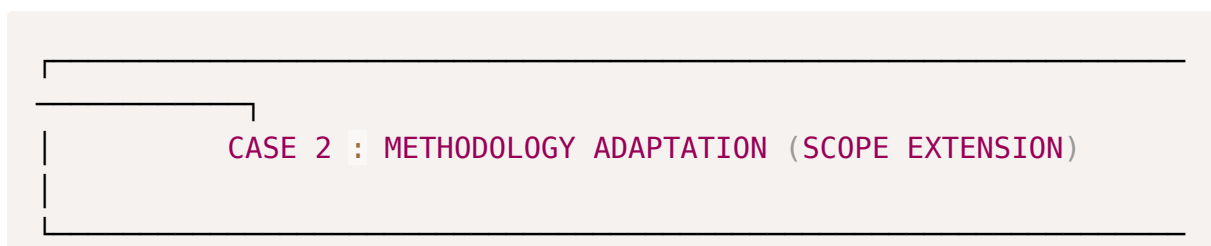


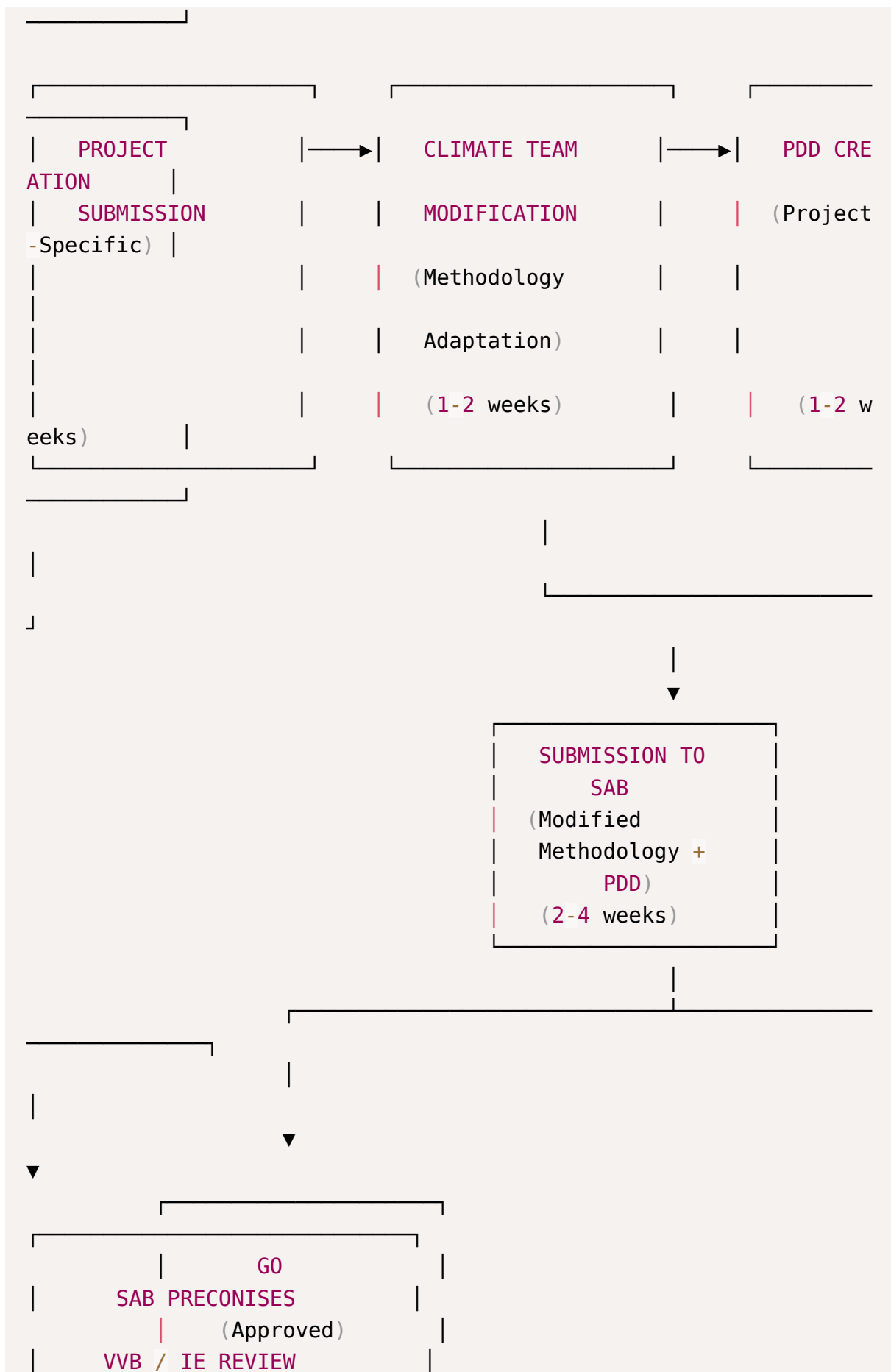


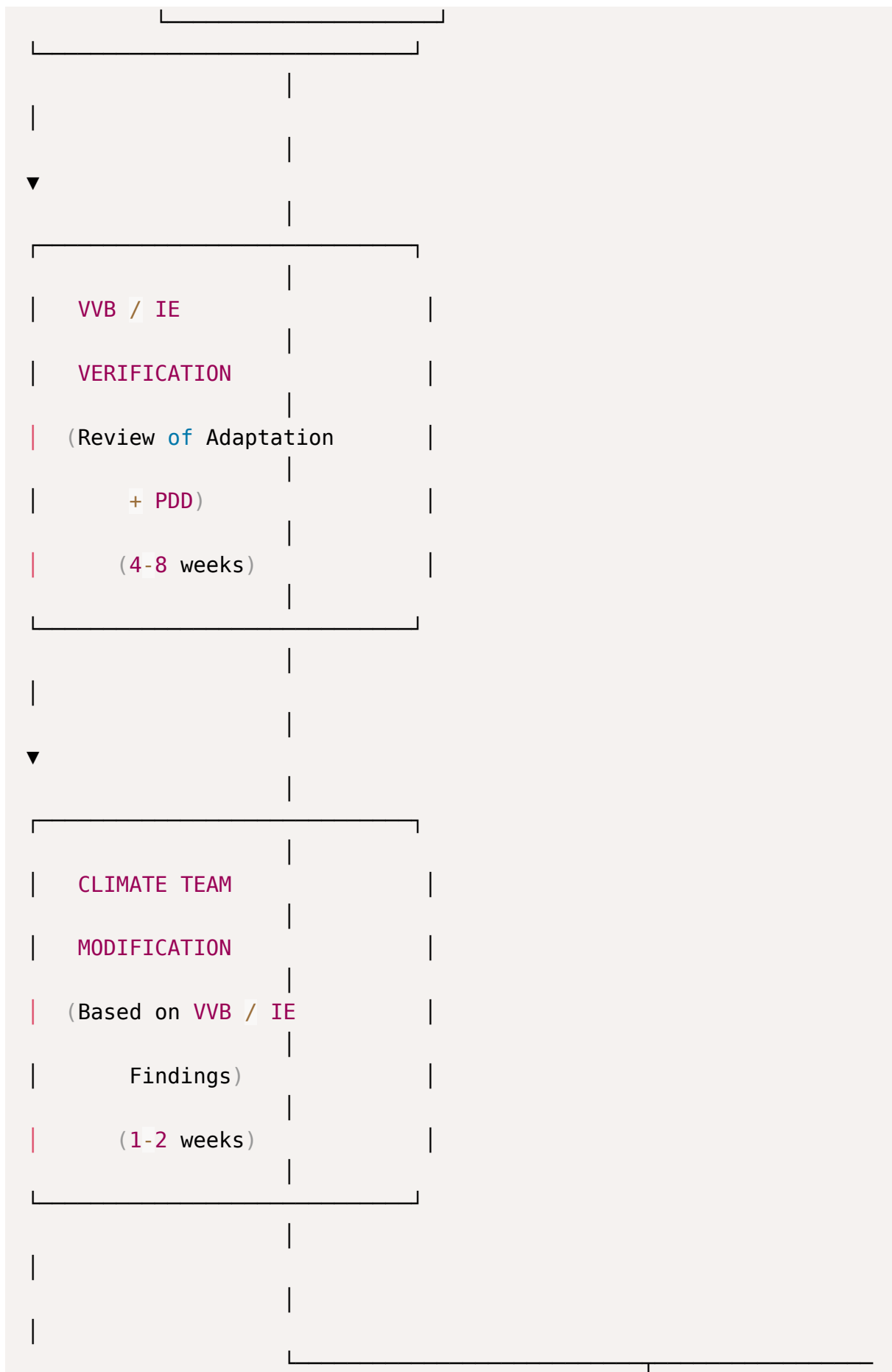


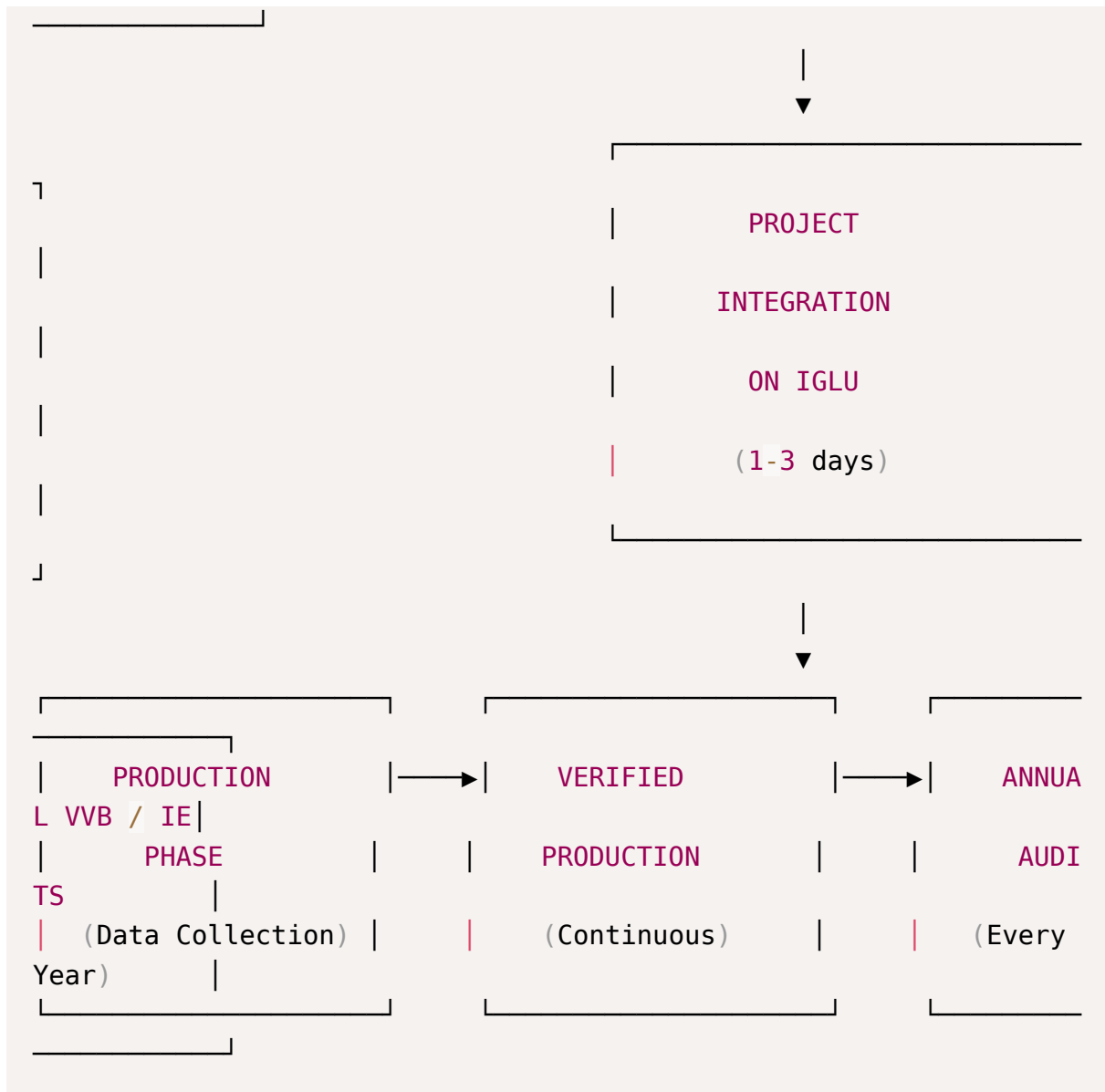


Case B - Adaptation of an Existing, Validated Methodology:

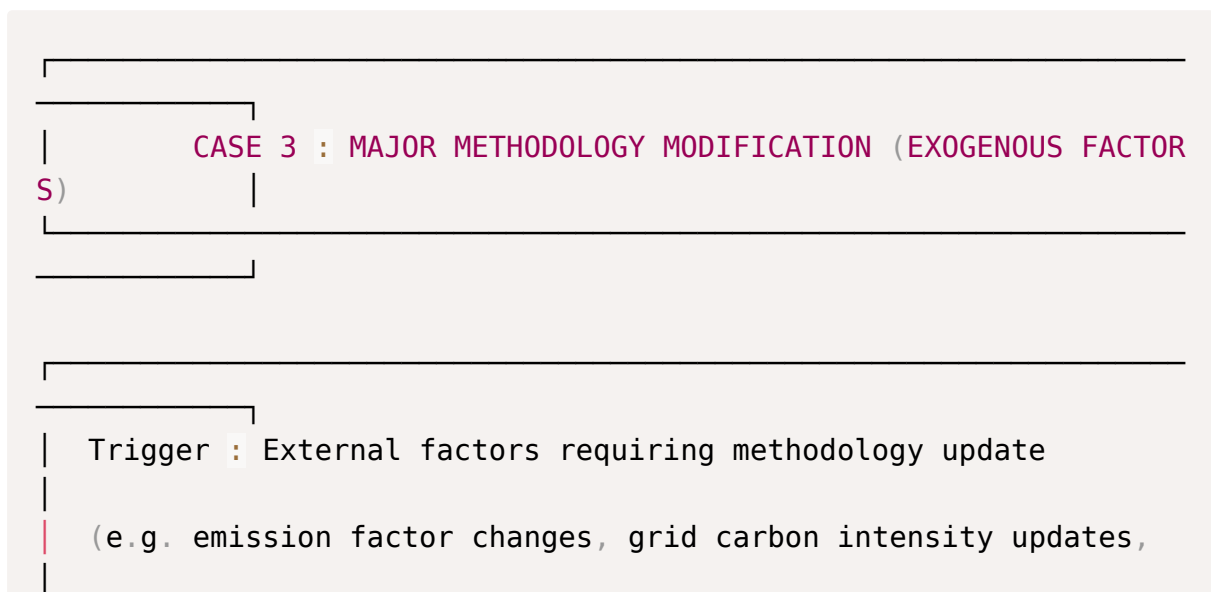




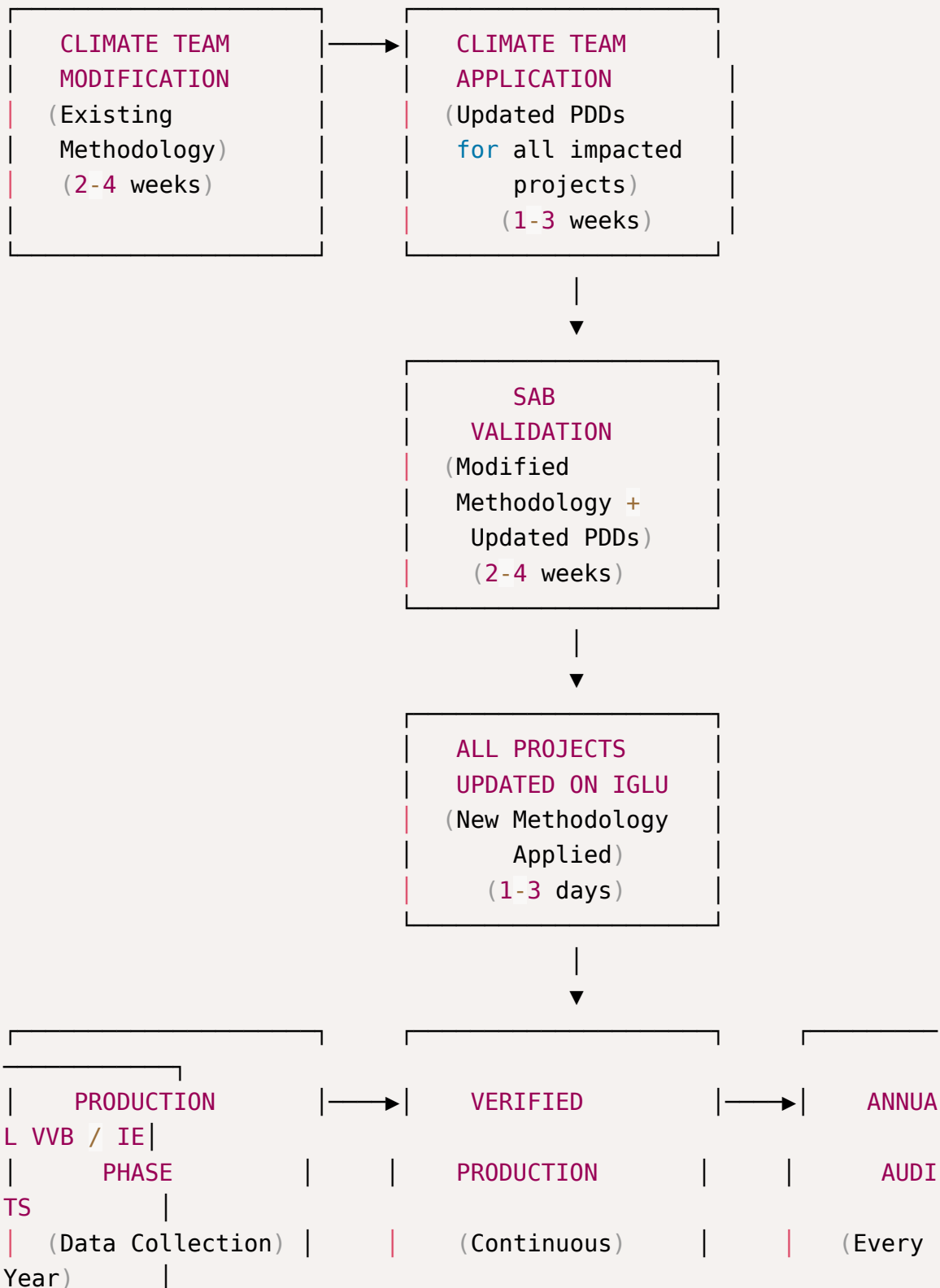




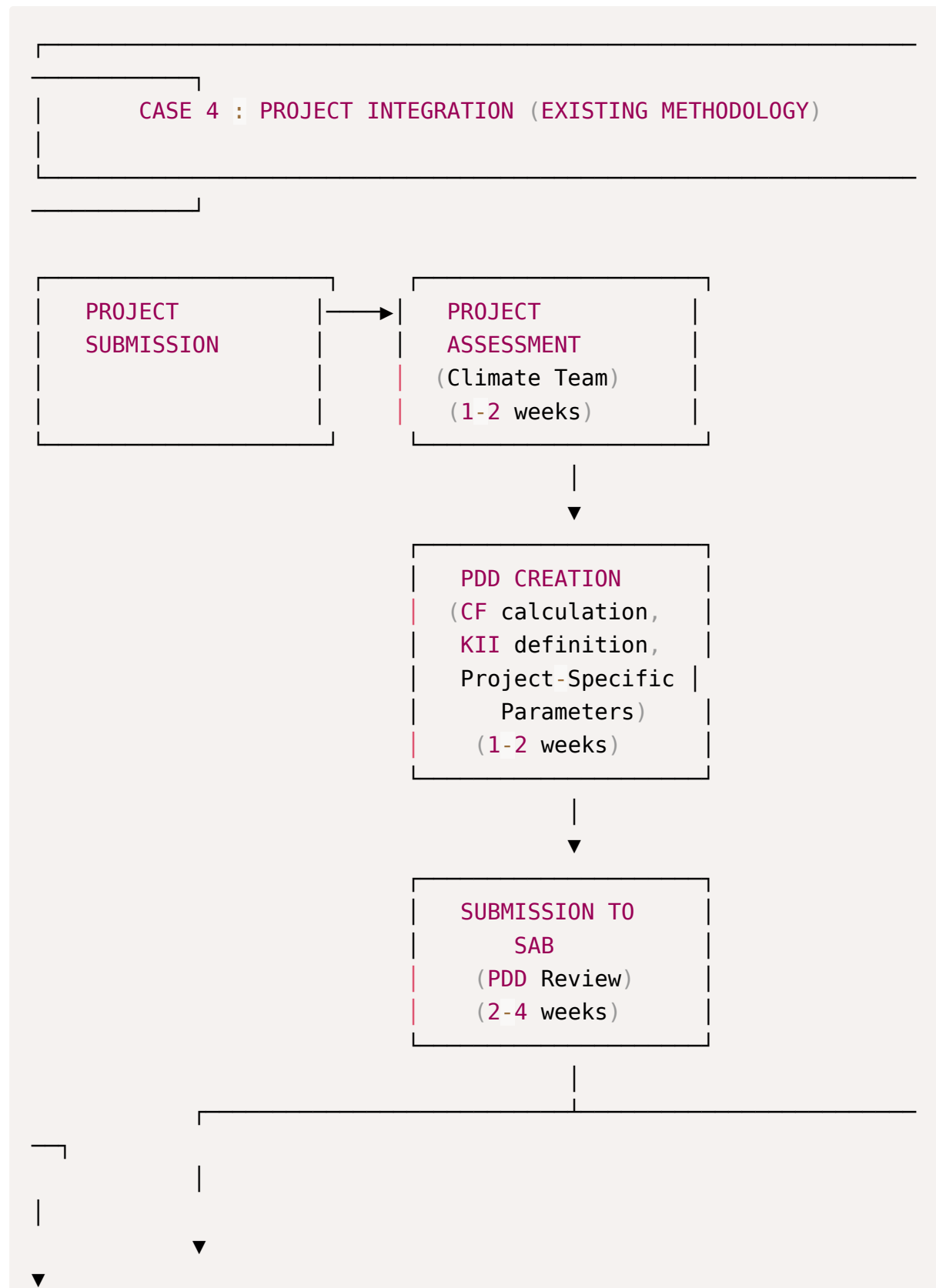
Case C: Major Modification of a Methodology (Exogenous Factors)

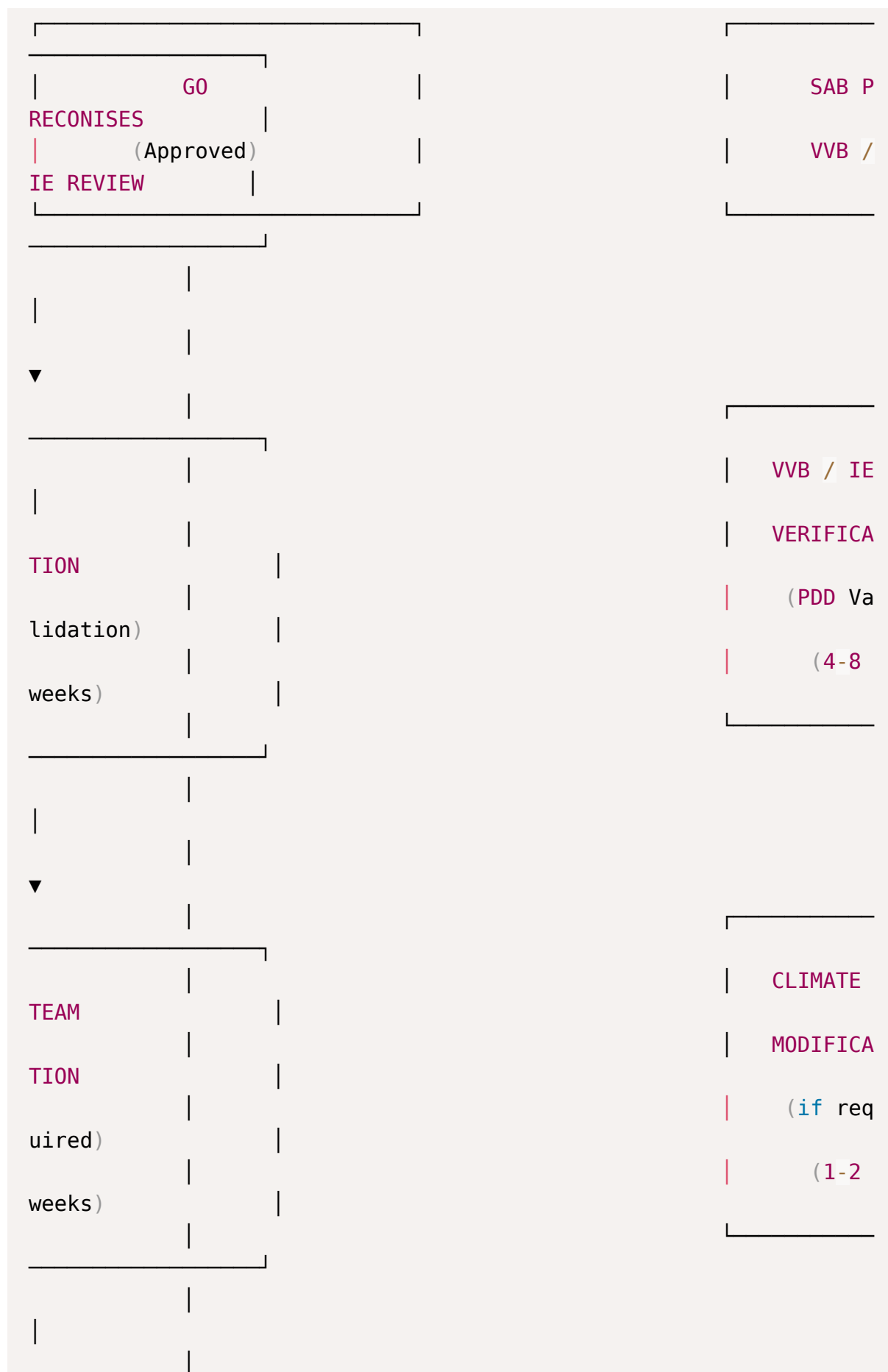


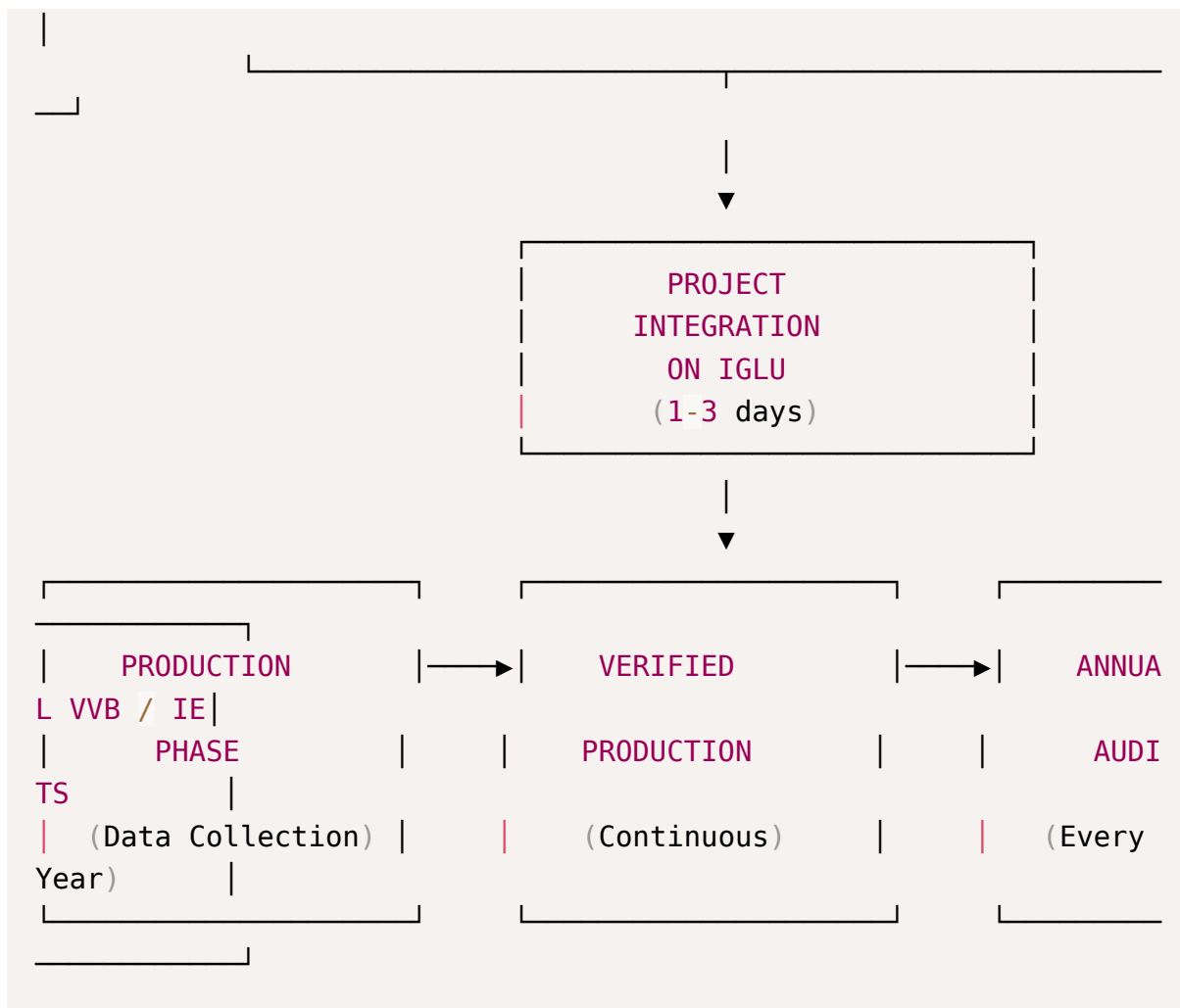
regulatory changes, scientific consensus revision)



Case D: Integrating a Project with an Existing Methodology





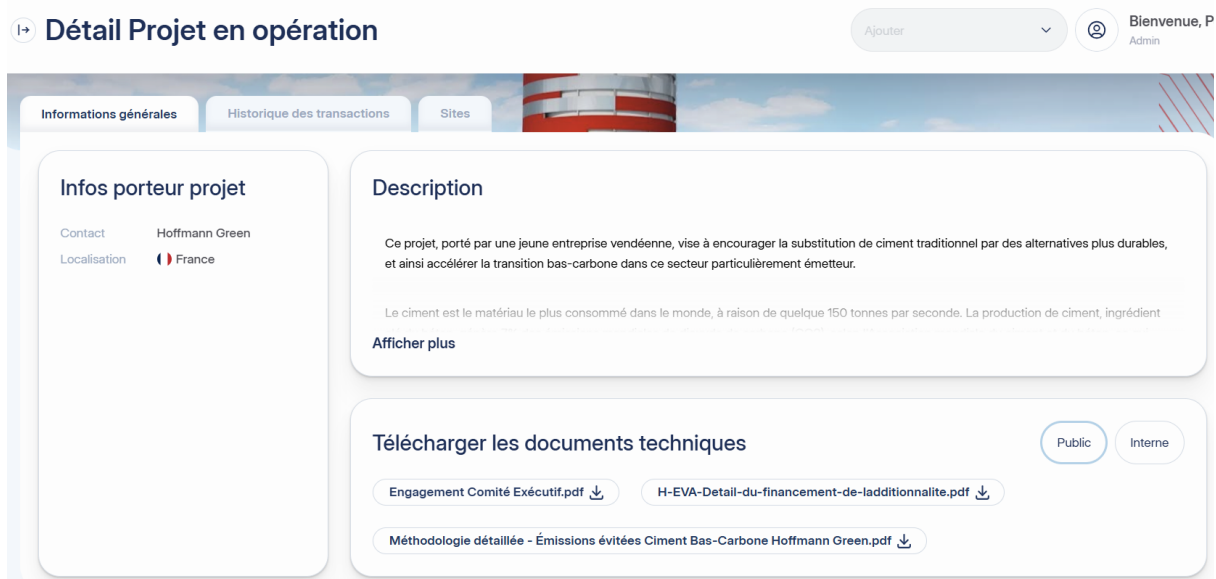


3.5 Publishing the Project Documentation Hub

Each project has a “Documentation Hub” containing:

- The complete methodology applied
- The project-specific parameters (KII) available in the PDD
- The conversion factors used
- The revision history

Access: The public catalog can be accessed on IGLU without registration. Projects are visible on their respective public pages, such as the Hoffmann Green project, which references the detailed methodology applied and the justification of additionality.



4. MRV Process and Data Lifecycle (IGLU)

The MRV (Measurement, Reporting, Verification) system is based on the IGLU platform, which provides ex-post monitoring based on actual production data. The system guarantees the integrity of carbon credits: activity data is measured daily, and KIs are measured according to the frequency established in the PDD. This data is entered into IGLU and verified by our teams and project developers on a quarterly basis, and by an independent verification body (VVB/IE) annually.

Monitoring is **ex-post**, based on actual production data—credits are issued only after the reductions actually achieved have been verified.

4.1 Overview of the MRV System

The Inuk Standard is built on the IGLU technology solution, which permanently and durably records on the blockchain every piece of physical data used to generate an Inuk carbon credit.

Consequently, projects eligible under the Inuk Standard must be able to provide reliable, accurate, and verifiable data.

Project Type	Accepted Data for the Project Scenario
Replacement of fossil fuel-based facilities with renewable energy sources	Project production data in kWh, recorded daily
Significant improvements in energy efficiency that reduce fossil fuel consumption	Depending on the technology: renewable heat production in kWh, energy consumption in kWh, any other data that verifies actual operation

Project Type	Accepted Data for the Project Scenario
Renewable electricity generation contributing to an energy mix that relies on fossil fuels	Project production data in kWh, recorded daily
Technological innovations eliminating the use of fossil fuels	Production data by functional unit as defined by the methodology, recorded daily

4.2 Data Lifecycle and Verification

4.2.1 Collection of Production Data

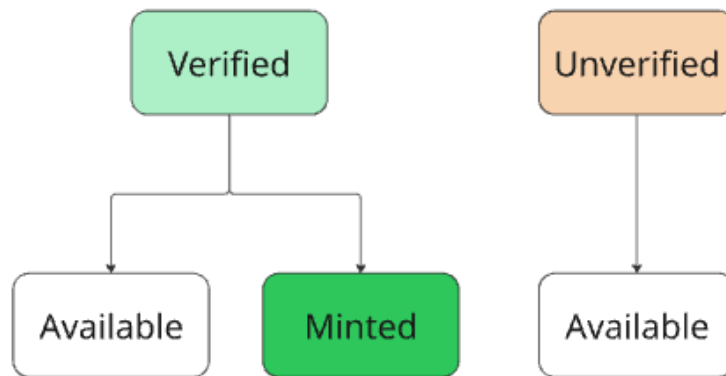
Data is collected on a best-endeavours basis, according to the operational constraints of the project. Where possible, data is gathered daily (D+1) via APIs or IoT sensors. If daily collection is not feasible, a weekly, monthly, or quarterly collection is acceptable, provided the data retains its daily granularity.

4.2.2 Production Statuses

Data has three statuses:

Production Status	Description
Unverified Production	Refers to the raw production data initially submitted by project owners. This data is received either automatically via our API or manually through file imports. It is pending verification before moving on to the next step.
Verified Production - Available	Represents production data that has been verified. Verification involves analyzing order of magnitude and comparing the data to reference data (e.g., producers' annual reports). Corrections are made to the raw data if errors are detected.
Production Verified - Minted	Verified production data is then "minted," that is, tokenized. Each metric ton of CO2 avoided is converted into a unique digital token (NFT), enriched with project metadata, ensuring that double counting is impossible.

Production Status



4.2.3 “Double Verification” Protocol

The issuance of ICCs is operated by the Certification team once the actual physical data has been collected on site and verified.

Verification of data occurs in **four discrete steps** combining automated checks and human validation:

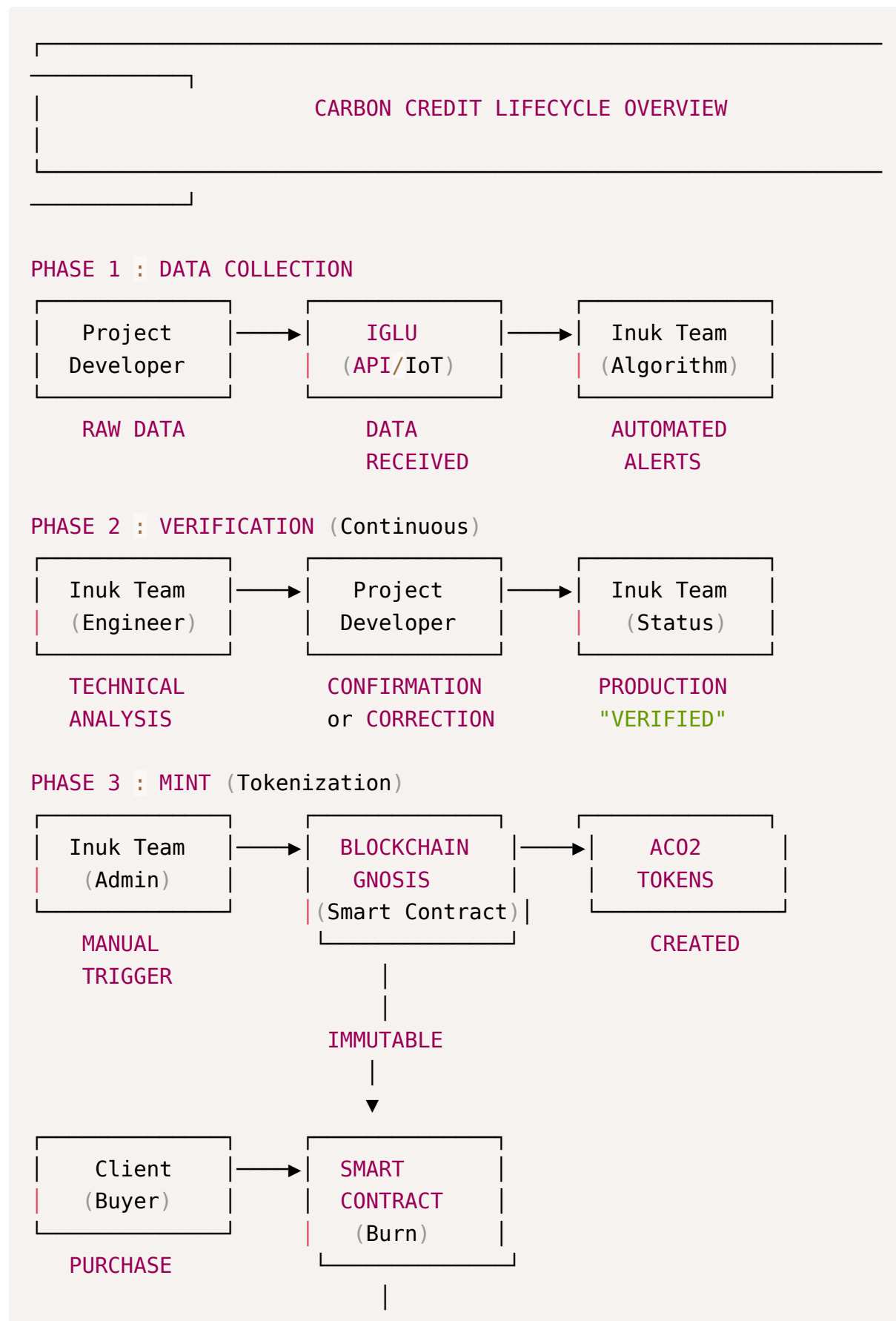
- **Step 1 (Automated):** Data is automatically verified by our internal algorithm on IGLU to check for data coherence and detect any physical anomalies.
- **Step 2 (Human - Technical):** Data is reviewed by a carbon engineer from the Certification team to ensure technical validity.
- **Step 3 (Human - Cross-check):** Coherence with other secondary data sources (e.g., producer's internal reports or national grid data) is verified by a carbon engineer to ensure consistency.
- **Step 4 (Human - Proponent):** The processed data is submitted to the project developer via IGLU. They must either confirm its accuracy or dispute it by providing tangible evidence (screenshots of monitoring platforms, internal dashboards).

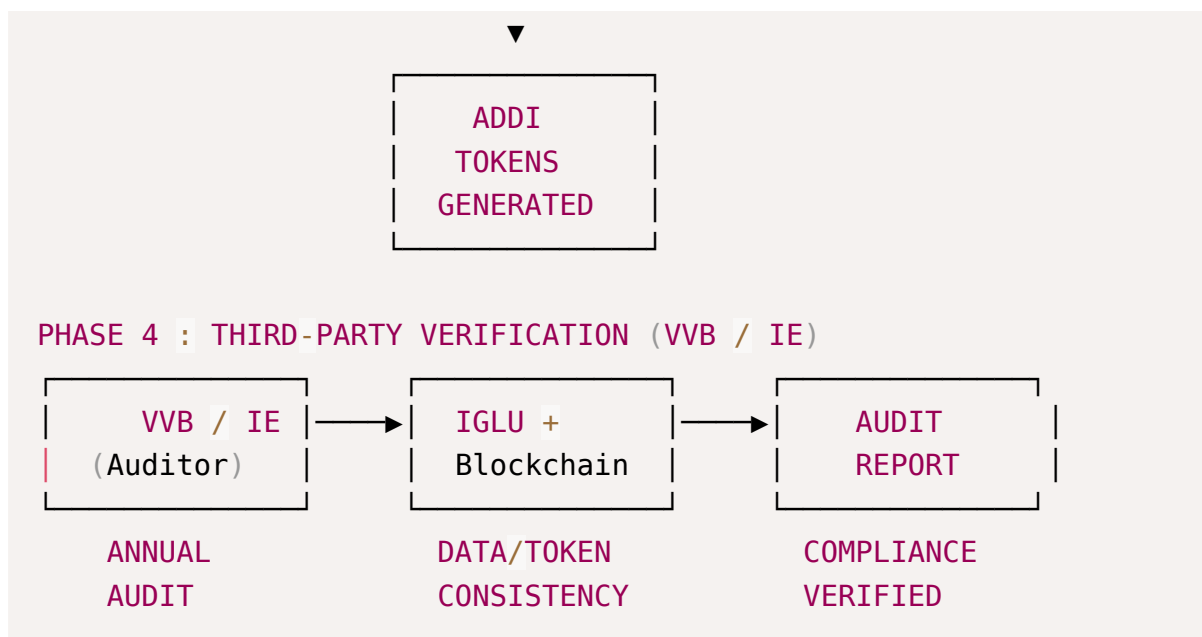
Once verification is done, issuance can be operated directly on Iglu (ie. “Production Minted”, see). The name of the operator from the certification team who does the issuance is registered in the process.

4.3 Flowchart: Who Does What in the Verification Process?

The table below clarifies the responsibilities of each stakeholder throughout the lifecycle of the data and carbon credits.

4.3.1 Overview of Responsibilities





4.3.2 Detailed Responsibilities by Stakeholder

Stakeholder	Responsibilities	Frequency	Nature of the Role
Project Lead	Submission of Production Data	Daily or quarterly	Automated
Inuk Team (Algorithm)	Anomaly detection, automatic alerts	Continuous	Automated (off-chain)
Inuk Team (Engineer)	Technical analysis, data validation	Continue	Human
Inuk Team (Admin)	Mint Trigger	After validation	Manual (on-chain)
Gnosis Blockchain	Immutable token registration	With each minting (quarterly)/burn	Automated (on-chain)
VVB / IE	Annual consistency audit	Annual	Independent third party

Each registered mitigation activity shall undergo a verification process at least once every year. The maximum allowable period between two verification events is twelve months.

As part of this annual process, the VVB performs a consolidated recalculation of the total volume of ICCs issued throughout the year. Based on the VVB's findings, Inuk shall implement any necessary adjustments to regularize potential over-issuance, ensuring that the total minted quantity strictly matches the actual verified reductions. Any identified discrepancies are corrected via the Error Handling Protocol (Section 4.3.3), which may include the cancellation or compensatory retirement of units.

If a mitigation activity exceeds this verification interval, the subsequent verification shall be conducted according to the same procedures, requirements, and criteria applicable

to a regular verification event. No simplified, alternative, or reduced verification process shall apply due to a delay in completing the verification.

The issuance of new mitigation units shall remain suspended until the required verification has been successfully completed **and the production volumes for the previous period have been fully regularized.**

If the verification delay results in a loss of compliance with Inuk Standard requirements, the mitigation activity may be temporarily suspended or moved to an inactive status until compliance is restored.

"Payment First" Policy: No credits are removed or burned from the registry until full payment has been confirmed, preventing any irreversible errors on the blockchain.

4.3.3 Error Handling Protocol

The Inuk Standard provides specific protocols to manage potential minting errors on the blockchain, although these are deemed 'highly improbable' due to the system's permanent traceability.

The following measures are planned in the event of an error (calculation error, incorrect input data, or handling error):

- **Immediate investigation:** The certification team must first identify and investigate the source of the error.
- **If the credits have not yet been used (retired):** The corresponding amount of ACO₂ tokens is cancelled directly on the registry.
- **If the credits have already been used (retired):** The certification team retires an equivalent amount of credits on behalf of the user, at no cost to them, in order to rectify the situation.
- **Full traceability:** All such corrective actions are immutably recorded on the blockchain and the IGLU platform to guarantee the integrity of the audit trail.

5. Governance and Administration of the Registry

5.1 Administrator Access Management

To ensure the security and irreversibility of operations, sensitive functions (including the withdrawal or destruction of credits) are exclusively reserved for duly authorized Inuk administrators

- **Ethics:** All registry operators are employees subject to the Standard's Conflict of Interest (COI) policy.

5.2 Retirement Procedures

Carbon credit retirement follows a specific protocol at Inuk. Given that our Standard operates on blockchain-based technology, all actions and data are traced and immutable. This immutability extends to the retirement process.

For security purposes, retirement actions are currently executed exclusively by Inuk team members with administrative rights on Iglu. This restricted access is necessary because blockchain transactions are irreversible: if a carbon credit holder were to enter an incorrect amount or make an error, the transaction cannot be reversed or modified once it has been recorded on the blockchain.

Furthermore, we implement a payment-first policy before proceeding with retirement. This safeguard ensures that if we were to retire carbon credits and the purchaser subsequently changed their mind or failed to complete payment, we would be unable to reverse the retirement transaction.

Before any retirement is processed, the carbon credit holder shall provide the intended purpose of retirement. This declaration is mandatory and forms part of the permanent retirement record. The purpose of retirement may include, but is not limited to, the compensation of emissions associated with a corporate greenhouse gas inventory, business travel, specific operational emissions, or another declared use. Where applicable, the credit holder shall also provide contextual information describing the emissions or activity to which the retirement relates.

ICC can be retired directly on IGLU platform. The procedure goes as follows :

- The carbon credit user places an order to the Certification Team stating the requested volume, the selected project and the intended purpose of retirement.
- The Inuk team generates the corresponding invoice.
- Once the invoice is paid in full, the Inuk team creates an account for the credit user on Iglu.
- Then, the Inuk team performs retirement directly on IGLU. This action must be done by a member of the Inuk team.
- Retirement occurs immediately and is registered on the blockchain. A certificate is generated and directly available on the credit user account.

All retirement are available on iglu. Once retired, ICC can not be unretired, or canceled, or sold to another party : **any retirement is final.**