

# Green Line: a capacity-under-development instrument

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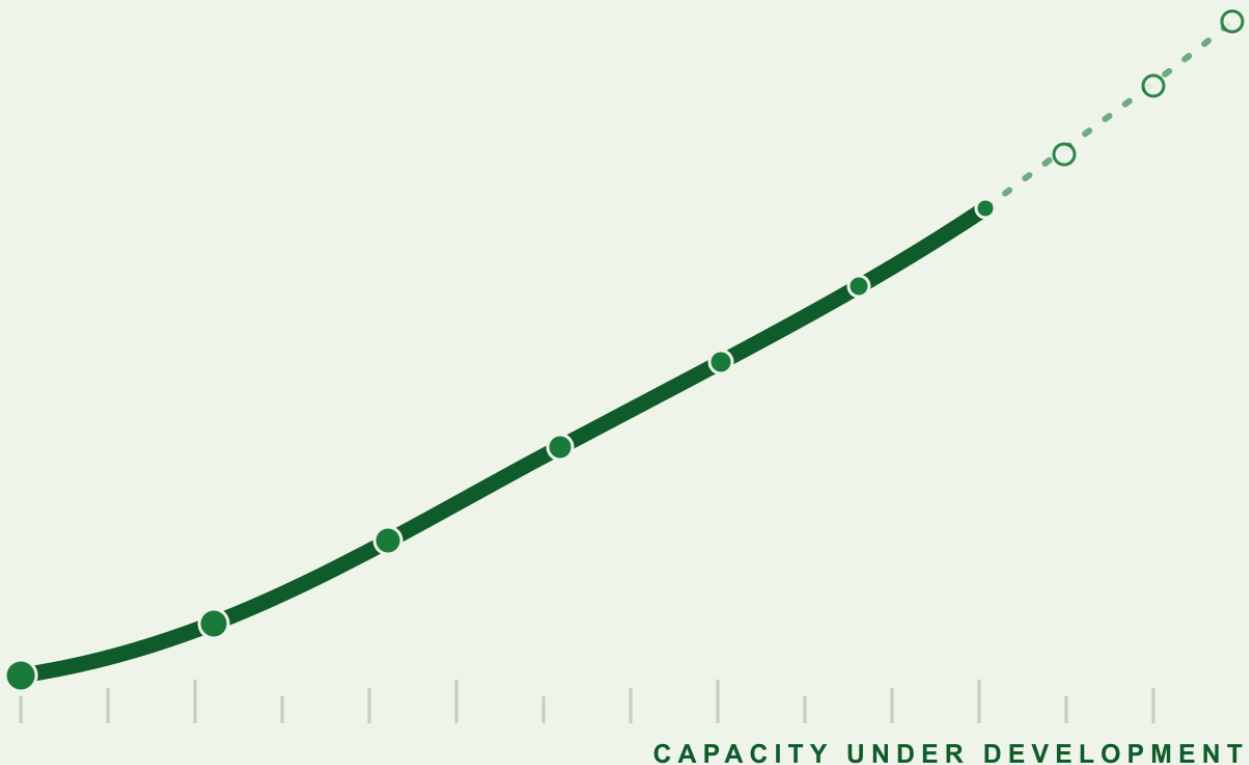
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## GREEN LINE



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# 1 Abstract

The Green Line is a capacity-under-development instrument: it records what a person or project is deliberately still learning, with marker/counter-signal staging that keeps growth records from hardening into resumes, competence certifications, or virtue signals. The instrument answers one question — *what is still growing?* — by reading self-declared observations against a versioned registry of growth records, each naming the markers a reader could look for. Unlike the four classical lines of the set, the Green Line carries no opus stage: a stageless line is the designed outcome, because apprenticeship has no alchemical completion. A read returns staged statuses (STAGED, NEEDS\_MARKER, NEEDS\_REWORK, OUTSIDE\_SCOPE) that describe marker coverage at a review date and never competence, mastery, or permission. The package is pure standard library, fails closed on empty or hostile input, and exports its verdicts in the set's common report-envelope schema for co-registration with the sibling instruments.

## 2 Introduction

### 2.1 Question

Green Line answers one question: *what is still growing?*

### 2.2 Job

Its job is capacity under development: apprenticeships, skills deliberately not yet mastered, with marker/counter-signal staging. Where Black Line describes how strong work is done and Red Line describes what must never be crossed, Green Line holds the honest middle: the named, dated, inspectable record of what someone is still learning on purpose.

### 2.3 What it is never

The line has one inviolable boundary. Green Line must never become:

- a resume — a list of attained credentials;
- a competence certification — a claim that a skill is mastered;
- a virtue signal — a performance of learning for status.

The counter-signal intake stages observations phrased as certification or credential language aside with a note rather than scoring them. Growth records that drift toward those genres are visible as drift, not scored.

## 3 Method

### 3.1 Staged reading

A read proceeds in three stages:

1. **Intake** (`green_line.intake`). Input is normalized fail-closed: blank descriptions are blocking defects; malformed labels and unreadable or future-dated observations become set-aside notes; counter-signal labels (certification, credential, resume language) are staged aside with an explanatory note and never counted. Nothing crashes on hostile input and no value is invented.
2. **Matching** (`green_line.evaluator`). Growth records whose tags intersect the attempt's declared tags apply. An empty intersection is the outcome `OUTSIDE_SCOPE`, not an exception.
3. **Projection** (`green_line.evaluator`). Each applied record's required markers are split into present, missing, and stale surfaces; the status projection selects the most demanding reading and the reasons trail preserves what the projection compresses.

### 3.2 Statuses

`STAGED` — all required markers fresh. `NEEDS_MARKER` — gaps are only stale markers needing refresh, or nothing was declared. `NEEDS_REWORK` — fresh markers are missing, or a blocking intake defect fired. `OUTSIDE_SCOPE` — no record applied.

### 3.3 Determinism

Every read is a pure function of the attempt, the registry, and the review configuration. Reads are serialized canonically (sorted keys, declaration order preserved with explicit sorts before emit) and pinned by a SHA-256 digest of both the reading and the registry that produced it.

## 4 Formalism

**Definition 1 (Growth record).** A **growth record**  $g = (id, title, wire, T_g, M_g, k)$  pairs an identifier with a tag set  $T_g$  over the reviewed vocabulary and an ordered tuple of required markers  $M_g$ , grouped into a growth family  $k$ .

**Definition 2 (Tag vocabulary).** The reviewed tag vocabulary  $\mathcal{T}$  is a finite set of tag strings; every record's tags must be drawn from it.

**Definition 3 (Cultivation attempt).** A **cultivation attempt**  $a = (d, T_a, O, D)$  carries a description  $d$ , a tag set  $T_a$ , an undated observation set  $O$ , and dated observations  $D$  with ISO dates.

**Definition 4 (Applicability).** A record  $g$  applies to an attempt  $a$  exactly when  $T_g \cap T_a \neq \emptyset$ .

**Definition 5 (Freshness).** Given a review date  $r$  and window  $w$ , an observation dated  $t$  is **fresh** if  $t \leq r$  and  $r - t \leq w$ ; **stale** if  $t \leq r$  and  $r - t > w$ ; **not counted** otherwise. Undated observations are fresh.

**Definition 6 (Finding rule).** For an applied record with marker surfaces (present  $P$ , missing  $M$ , stale  $S \subseteq M$ ): the status is STAGED when  $M = \emptyset$ ; NEEDS\_MARKER when nothing was declared or  $S = M$ ; NEEDS\_REWORK otherwise.

**Definition 7 (Aggregation).** The overall status is NEEDS\_REWORK if any finding is NEEDS\_REWORK; else NEEDS\_MARKER if any is NEEDS\_MARKER; else STAGED if any finding exists; else OUTSIDE\_SCOPE.

**Definition 8 (Counter-signal staging).** An observation whose label matches the counter-signal phrase list is staged aside with an intake note and contributes to no surface.

**Proposition 1 (Fail-closed registry).** If the registry fails its shape check, the read is NEEDS\_REWORK with no findings and an intake note naming the defect.

**Proposition 2 (Empty scan set).** If no record's tags intersect the attempt's tags, the read is OUTSIDE\_SCOPE.

**Proposition 3 (Determinism).** Two reads of the same attempt against the same registry at the same review date produce identical canonical serializations and identical digests.

## 5 Examples

### 5.1 A worked read

A learner declares an attempt tagged **research** and **teaching** with observations **mentor** and **session\_log** dated inside the review window. The records **apprentice-review**, **deliberate-gaps**, **staged-practice**, **teach-to-learn**, and **stated-uncertainty** apply (by tag intersection). **apprentice-review** reads STAGED by the finding rule [Definition 6](#); the others read NEEDS\_MARKER because their markers were not declared. The overall status follows the aggregation rule [Definition 7](#). The overall status is NEEDS\_MARKER: gaps ask for practice, not judgment.

### 5.2 A counter-signal

The same attempt with an added dated observation **certified as expert** gets that observation staged aside with a note; the read is unchanged, because certification language is exactly the drift the line refuses to score.

Counter-signal staging follows [Definition 8](#); the empty-scan-set outcome is stated by [Proposition 2](#), and determinism by [Proposition 3](#).

## 6 Limits

- A read describes marker declarations, not practice: a declared marker is not verified evidence that a mentor met, a drill ran, or a skill grew.
- Applicability is tag intersection [Definition 4](#) over the reviewed vocabulary [Definition 2](#).
- The registry is content, not judgment: record choice encodes what this instrument watches for, and another registry is a different instrument.
- Counter-signal detection is lexical; a resume-shaped growth record phrased innocently passes intake. The instrument surfaces vocabulary drift, not intent.
- The line makes no claim about other lines. Envelopes carrying `native_status` values are witness records and are never compared across lines.
- Underclaiming is the register of record: `docs/claim_boundaries.md` is the authoritative statement of what the instrument does and does not claim.

## 7 Conclusion

The Green Line holds a place the other lines deliberately do not: the record of what is still growing, held open on purpose, without opus stage and without completion claims. Its failure modes are the genres it must never become, and its counter-signal intake makes those failure modes visible as drift rather than scored as content. As a set member it is ordinary: one registry, one evaluator, one envelope schema, no special cases.

## References