SBV-Constriction v2: Likely & Lovely + Skeptical Evidence — One-Page Protocol

Purpose

Combine SBV 8-step analysis with a constriction index (CI) and readiness index (RI) while explicitly rating entrepreneurial claims on two axes: Likely (how plausible/validated) and Lovely (how valuable/desirable). Add skeptical discounting for unverified claims; store inputs/outputs reproducibly.

Pre-coding Protocol (run before coding)

1) Inventory claims: list product/performance, customer, certification, and funding claims; mark critical ones.
2) Source triage: collect the company site (primary) and ≥2 independent sources per major claim; extract quotes with date-seen.
3) Rate evidence (1–5): 1=no public evidence; 3=some third-party mention; 5=independent demonstrations/production data.
4) Theory grounding: cite peer-review or standards explaining why the claim could work; note any contradictory theory.
5) Social proof: record accelerators, grants, pilots, customers, advisors; assess credibility.
6) Mark verification state per field (verified/partial/unverified) and compute Verification Score (VS): 1.0/0.8/0.6.
7) Build SBV Steps 0–8; define bottlenecks with severities; compute CI and RI; keep raw & adjusted values.
8) Persist JSON + config hash; attach citations.

Scales & Mappings

Evidence rating (E) 1–5; Theory rating (T) 1–5; Social proof (SP) 1–5.
Likely score LS_norm = (0.5*E + 0.25*T + 0.25*SP) / 5 ∈ [0,1].
Lovely score LV_norm = LV/5, LV∈{1..5} based on desirability (market impact, decarbonization, cost/benefit, safety, policy fit).
Claim Confidence Factor CCF = LS_norm × LV_norm.

Constriction (on adjusted severities)

Given adjusted severities s_i in [0,5] for k bottlenecks: S=Σs_i; Md=median(s_i); Mx=max(s_i); Cx=Mx/max(Md, ε), ε=0.001.
Fixed-scale norms: S/(5k), Md/5, Mx/5, clip(Cx/C_cap,0,1). Cohort norms: min–max within cohort.
CI = w1·S_norm + w2·Md_norm + w3·Mx_norm + w4·Cx_norm; default weights w=[0.35,0.20,0.30,0.15].

Readiness & Skepticism

Readiness levels (TRL, IRL, ORL, RCL) ∈ [1..9]. Apply VS where the level depends on unverified claims: L_adj = L_raw·VS.
RI = (TRL_adj·IRL_adj·ORL_adj·RCL_adj)^(1/4) / 9 ∈ [0,1]. Evidence Penalty EP = 1 − α·p_unver, α∈[0,1] (default 0.25), where p_unver is the share of unverified critical claims.
RI_skeptical = RI·EP. Risk-Adjusted Readiness RAR = RI_skeptical·(1 − CI).

Storage (tiny JSON contract)

Top-level: company, homepage, as_of_date, analysis_run_id, config_hash.
Sections: constriction{S,Md,Mx,Cx,CI_fix,CI_mode}, readiness{TRL_raw/adj,IRL_raw/adj,ORL_raw/adj,RCL_raw/adj,RI,EP,RI_skeptical,RAR}, likely_lovely{E,T,SP,LS_norm,LV,LV_norm,CCF}, bottlenecks[], evidence[] (claim,url,date_seen,quote), wayback{}, funding[]

Audit & Edge Cases

If k=0: CI=0. If k=1: Cx=1. Missing verification → treat as unverified (VS=0.6). Store both fixed and cohort-normalized fields when available. Embed cohort_id when computing comparative ranks. Keep versioned schema and config hash to ensure reproducibility.

References (theory & examples)

Battery microstructure & dry/dry-ish electrode processes and their effects on transport, safety, and cost are covered in recent reviews; use these to score T (examples cited in the accompanying analysis PDF).