# VentureSync: AI-Powered VC-Founder Matching Platform – Product Requirements Document (PRD)

### TL;DR

VentureSync is a multi-agent, explainable, and fairness-aware AI platform that matches US-based founders with aligned venture capital partners. It compresses fundraising cycles and improves match quality through outcome-predictive scoring, real-time market intelligence, bias detection, and transparent rationales. It is decision-driven: each feature has clear hypotheses, success metrics, kill/scale thresholds, rollout gates, and guardrails. Targets include 3x faster funding (median 89 days vs 180), intro→meeting 35%, meeting→term sheet 12%, and term sheet→funding 65%. Pricing is freemium with founder premium at $99/month, VC enterprise at $500/month, and 2% success fee. Goal: $2M ARR by month 12 with 15% monthly growth.

## Executive Summary

* Market Opportunity: A $1.5B+ market around startup fundraising with >100K US startups and ~2K venture firms; current tools under-serve matching, diligence intelligence, and equitable access.
* Core Vision: The default AI layer for VC-founder matching—reducing time-to-first-meeting from weeks to days and improving conversion via data-driven, explainable, fair recommendations.
* Strategy: Decision-driven, experiment-led development. Every feature includes a business hypothesis, motivating data, explicit scope, non-goals, success and guardrail metrics, and kill/scale criteria.
* Target Users: US technical founders (pre-seed to Series A) and VC partners/principals seeking higher-signal, thesis-aligned deal flow.

## Goals

### Business Goals (12 months)

* $2M ARR; 15% MoM growth after public launch.
* CAC <$150; LTV $2,400; CAC payback <3 months.
* Secure 5 enterprise VC clients; 2 marquee success stories in first 90 days.

### User Goals

* Founders receive ≥3 high-fit VC matches (>80 compatibility) within 48 hours of onboarding.
* Reduce time-to-first-meeting to ≤5 days (median).
* VC weekly queue of 20–40 high-signal companies with transparent rationales.
* Equitable matching with demographic parity ≥90% (consented data).

### Product Outcomes (Launch → Day 90)

* ≥500 AI introductions; intro→meeting ≥35%.
* Meeting→term sheet ≥12%; term sheet→funding ≥65%.
* Platform ROI: 3x faster funding; median time to funding 89 days vs 180 baseline.
* NPS: Founders >50; VCs >40.

### Technical & Reliability

* Uptime ≥99.5% monthly.
* WebSocket p95 latency <2s; AI analysis p95 <30s.
* Deck parse accuracy ≥90% on key entities.

### Non-Goals (v1)

* Managing capital transactions/escrow/term sheets.
* Full CRM replacement (integrations only).
* Non-US markets (expansion later).

## Problem Statement

Fundraising is slow (3–6 months), gatekept by warm intros, and inefficient. Mismatch on sector, stage, check size, and geography wastes time. Traditional platforms lack explainability, fairness, and predictive modeling. Seven gaps: warm-intro gatekeeping, information asymmetries, manual processes, low match quality, poor scalability, primitive AI, and untapped real-time data.

## Strategic Fit & Hypotheses

* Strategic Bet A: Decision-grade matching increases conversion and reduces cycle time.
  + Hypothesis: Explainable matches with outcome-predictive scoring will raise intro→meeting to ≥35% and reduce time-to-first-meeting to ≤5 days.
  + Motivating Data: Cold outreach conversion <10%; existing tools lack thesis-level explainability.
* Strategic Bet B: Fairness as a product requirement expands TAM and trust.
  + Hypothesis: Bias monitoring and remediation will maintain ≥90% demographic parity without degrading match acceptance by more than 5%.
* Strategic Bet C: Market intelligence boosts relevance.
  + Hypothesis: Incorporating hiring/news/product signals lifts meeting rates by ≥10% vs static profiles.
* Strategic Bet D: Post-match workflow increases realized outcomes.
  + Hypothesis: Integrated intro/scheduling/feedback will improve meeting→term sheet by ≥3pp vs baseline.

## Solution Architecture

* Data Ingestion Layer: Founder inputs (profile, deck), VC theses/portfolios, and market feeds (hiring, launches, news sentiment).
* Multi-Agent AI:
  + Thesis Extractor Agent
  + Company Understanding Agent
  + Market Intelligence Agent
  + Bias Monitor Agent
* Predictive Success Scoring: Supervised model predicting intro acceptance and meeting likelihood; weekly calibrated.
* Matching Orchestrator: Blends thesis fit, predictive score, and recent market evidence.
* Explainability & Transparency: Per-match rationale with features and sources.
* Real-Time Delivery: WebSocket updates; <2s p95.
* Feedback Loop: Outcomes feed retraining.

## Decision-Driven Feature Specs

### 1) AI Matching & Ranking

* Hypothesis
  + Structured thesis fit + predictive scoring + live market signals will produce ≥35% intro→meeting with median time-to-meeting ≤5 days.
* Motivating Data
  + Warm intros outperform cold by 3–5x; model-based ranking with explainability is absent in incumbents.
* Scope
  + Inputs: Founder profile/deck; VC thesis/portfolio; market signals.
  + Output: Ranked VC list with compatibility score and rationale.
* Non-Goals & Accepted Tradeoffs
  + No auto-outreach (manual or assisted intro). Tradeoff: Higher user control over intros vs operational automation.
  + No global coverage (US only).
* Success Criteria
  + Match quality: ≥80 compatibility on top-3 matches for 70% of founders.
  + Conversion: intro→meeting ≥35% overall; lift vs baseline ≥25%.
  + Latency: AI analysis p95 <30s.
* Kill/Scale Thresholds
  + Kill or rework if intro→meeting <25% for 4 consecutive weeks post-ramp (with stable traffic).
  + Scale to 100% if intro→meeting ≥38% with neutral fairness impact (≤5% delta).
* Rollout & Experimentation
  + Exposure: Start at 10% new founders; ramp 10→25→50→100% after meeting-rate gates: 28%/32%/35%.
  + A/B: Ranking weights experiments (signals vs thesis fit) with MDE 3pp on intro→meeting; 2-week windows.
  + Offline Golden Set: 500 labeled historical founder-VC pairs with ground-truth outcomes.
  + Human Review Rubric: 1–5 relevance scale; require ≥4 average on top-3 matches.
  + Rollback: One-click revert to prior model; kill-switch route documented and on-call accessible.
* Behavior Contract & Examples
  + Good: Returns VCs aligned on sector/stage/check size with clear rationale and portfolio overlaps.
  + Bad: Returns generalist VCs with ambiguous rationale; missing check-size alignment.
  + Reject: Includes funds explicitly marked “no AI/biotech” when founder sector is AI/biotech; cites sensitive attributes.
  + Example (Input → Output):
    - Input: Seed-stage AI devtools, raise $1.2M, US-based, 30% MoM growth.
    - Good Output: “Fund A (compat 86). Thesis: AI infra/devtools; recent investment in X. Check size $500k–$1.5M; partner Y active. Reasons: stage-fit, check-size, portfolio synergies, hiring signals.” Sources linked.
    - Bad Output: “Fund B (compat 78). Reasons: ‘strong fund, big brand.’” No sources; no check-size confirmation.
    - Reject Output: “Fund C (compat 82). Reason references founder gender” or includes funds outside geo mandate without justification.
* Edge Cases & Red-Team
  + Edge: Stealth startups with limited public signals; fallback to deck and manual attributes; confidence flag.
  + Red-Team: Prompt-injection in deck PDFs; defend via sanitization/segmentation and content safety filters.
  + Edge: Multi-sector companies; ensure multi-label thesis mapping.
  + Red-Team: Attempt to game compatibility via false traction; require corroborating signals (hiring/news) before boosting score.

### 2) Bias Detection & Fairness Monitor

* Hypothesis
  + Fairness constraints and monitoring will maintain demographic parity ≥90% without reducing meeting conversion by >5%.
* Motivating Data
  + Documented disparities in access/outcomes; regulatory and reputational risk.
* Scope
  + Monitor parity across consented demographics; exclude sensitive attributes from scoring; remediation workflows.
* Non-Goals & Tradeoffs
  + No demographic inference from proxies (privacy risk). Tradeoff: Potentially less granular fairness analysis.
* Success Criteria
  + Demographic parity difference ≤10% across consented groups.
  + Alert MTTA <1 hour; remediation within 24 hours.
* Kill/Scale Thresholds
  + Kill constraint changes if acceptance rate drops >7% overall for 2 weeks.
  + Scale tightened fairness constraints if parity improves without >3% conversion hit.
* Rollout & Experimentation
  + A/B fairness constraint strength; holdout 10% for measurement.
  + Offline Golden Set: Annotated fairness challenge cases.
  + Human Review Rubric: Equity panel review (pass/fail with notes).
  + Rollback: Revert fairness weights; notify impacted users if material.
* Behavior Contract & Examples
  + Good: Rationale avoids sensitive attributes; parity within thresholds.
  + Bad: Neutral parity but rationale hints at demographic proxies.
  + Reject: Any sensitive attribute used in scoring or rationale.
* Edge Cases & Red-Team
  + Edge: Small-n groups; use Bayesian smoothing with wide intervals.
  + Red-Team: Synthetic profiles probing disparate treatment; weekly audits.

### 3) Explainability & Transparency

* Hypothesis
  + Clear factor-based rationales with sources increase trust and prioritization, lifting intro requests by ≥10%.
* Scope
  + Per-match “Why this match?” with top factors, weights, and source links; confidence bands.
* Non-Goals & Tradeoffs
  + No exposure of proprietary feature weights beyond top contributors. Tradeoff: Protect IP vs full transparency.
* Success Criteria
  + Explainability CSAT ≥4.2/5; ≥60% sessions interact with explanations.
  + 90% of rationale items have source links; p95 <1s latency.
* Kill/Scale Thresholds
  + Kill rationale style if CSAT <3.8 for 2 weeks or increases support tickets >20%.
  + Scale feature breadth if CSAT ≥4.4 and usage >65%.
* Rollout & Experimentation
  + A/B rationale depth (3 vs 5 vs 8 factors).
  + Golden Set: 100 matches with pre-labeled “correct rationale” exemplars.
  + Human Rubric: Correctness (0–2), Clarity (0–2), Source accuracy (0–1); target ≥4/5 composite.
* Behavior Contract & Examples
  + Good: “Stage: Seed fit (source: fund site), check size match ($500k–$1.5M), portfolio overlap (AcmeDev), recent hiring indicates active investing.”
  + Bad: “Strong fund; good vibes; broad thesis.” No sources.
  + Reject: Mentions sensitive attributes or unverifiable claims.
* Edge Cases & Red-Team
  + Edge: Conflicting sources; show both with confidence.
  + Red-Team: Crafted decks to force hallucinated sources; enforce retrieval grounding.

### 4) Predictive Success Scoring

* Hypothesis
  + A supervised model using thesis fit + traction + signals improves meeting conversion by ≥5pp vs rules-only.
* Scope
  + Predict intro acceptance and meeting probability; calibrate weekly.
* Non-Goals & Tradeoffs
  + No black-box-only ranking; must remain interpretable. Tradeoff: Slight model accuracy trade for explainability.
* Success Criteria
  + AUC ≥0.70; calibration error (ECE) ≤0.05; offline→online lift correlation r≥0.6.
* Kill/Scale Thresholds
  + Kill model release if online lift <2pp vs control after 2 weeks.
  + Scale if lift ≥5pp with neutral fairness impact.
* Rollout & Experimentation
  + 50/50 model vs baseline control; 2-week test; MDE 3pp.
  + Golden Set: 10K labeled historical outcomes.
  + Human Rubric: Error analysis triage weekly.
* Behavior Contract & Examples
  + Good: Probability bands with confidence and caveats.
  + Bad: Overconfident 0/1 outputs.
  + Reject: Uses disallowed features (sensitive attributes).
* Edge Cases & Red-Team
  + Edge: Sparse data; use hierarchical priors.
  + Red-Team: Data poisoning via bots; anomaly detection and down-weighting.

### 5) Post-Match Intro & Scheduling

* Hypothesis
  + Embedded intro and scheduling improves meeting scheduled rate by ≥10pp vs email-only.
* Scope
  + Intro requests, status tracking, calendar integration, reminders, feedback capture.
* Non-Goals & Tradeoffs
  + No automated negotiation or term sheets.
* Success Criteria
  + End-to-end intro flow completion ≥70%.
  + Scheduling success ≥95%; feedback completion ≥60%.
* Kill/Scale Thresholds
  + Kill specific nudges if unsubscribe rate >8% or NPS impact negative.
  + Scale nudges if conversion +5pp without NPS dip.
* Rollout & Experimentation
  + A/B frequency/timing of reminders; guardrail: no more than 2 nudges/week/user.
  + Rollback: One-click disable per nudge type.

## Target Personas

* Technical Founder (Pre-Seed to Series A): Raise faster, reduce mismatches, gain transparent feedback; pain points include slow outreach and bias barriers.
* VC Partner/Principal: Higher-signal, thesis-aligned pipeline; needs explainability and quick triage.

## User Stories & Acceptance Criteria

* Founders
  + Upload deck and metrics; AI analysis <30s p95; parse accuracy ≥90%.
  + View transparent explanations; CSAT ≥4.2/5; top-5 rationale with sources.
  + Request intros/schedule; flow completion ≥70%; calendar success ≥95%.
  + Equitable access; demographic parity ≥90%.
* VCs
  + Weekly ranked list delivered by Monday 9am; top-10 compatibility >80% median.
  + Explainability panel 5–8 factors; source links <1s latency.
  + One-click feedback labels; ≥80% items labeled in 72 hours.

## User Experience

* Onboarding (5 Steps): Profile → Upload → Analysis → Results → Next Steps.
* Explainability UI: Factor chips, “Why this match?” panels, confidence indicators, and source links; p95 load <1s.
* Feedback & Ratings: Match relevance, outcomes, note capture; ≥50% matches labeled; median latency <3 days.
* Error Handling: Retries, fallbacks, and manual review prompts.
* Accessibility: WCAG 2.1 AA; quarterly audits; 0 critical issues.
* Mobile: PWA; push notifications; LCP <2.5s on 4G.

## Functional Requirements

* P0: Matching & Scoring; Bias-Aware Matching; Explainability.
* P0: Data Ingestion (decks, theses, signals).
* P1: Workflow (intros, scheduling, notifications).
* P1: Feedback & Learning; Fairness Monitor.
* P2: Network & Community features.
* P0: Admin & Compliance (audit logs, policy controls, moderation).

## Technical Specifications

* Frontend: React SPA (PWA), WebSockets.
* Backend: Python Flask, REST + WebSocket gateway, async workers.
* AI: Multi-agent orchestration; embeddings + supervised ranking; explainable outputs.
* Data: Portfolio/public data, market feeds; encrypted storage; feature store.
* Infra: CDN caching; autoscaling; observability; WAF; OAuth integrations.
* APIs: /profiles, /matches, /intros, /feedback, /vc, /auth, /consent, /metrics.
* WebSockets: match\_updates:{user\_id}, intro\_status:{thread\_id}.

## Responsible AI, Risks, & Compliance

* Explainability
  + Show top 5 contributing factors with weights and sources; model version visible.
* Bias & Fairness
  + Demographic parity difference ≤10%; weekly monitoring; remediation in <24h.
* Model Risks
  + Hallucinations: Retrieval-grounded rationales; source links required.
  + Data Drift: Weekly calibration; drift alerts.
  + Prompt Injection: Document sanitization; model-level input constraints.
* Privacy (GDPR/CCPA)
  + Consent-based processing; export/delete in ≤7 days; 12-month retention default.
* Transparency
  + Public model card: features, limitations, update cadence.
* Compliance Metrics
  + Fairness score >90%; consent completion ≥95%; 0 P1 security incidents.

## Competitive Analysis

* OpenVC: Directory-first, manual matching; lacks predictive, fairness, explainability.
* AngelList: Broad platform; not thesis-level matching.
* Vestbee: Lighter AI; EU focus.
* Deckmatch: Deck parsing without end-to-end workflow.
* Differentiators: Multi-agent explainable matching, predictive outcomes, real-time signals, fairness enforcement, and closed-loop workflow.

## Go-to-Market Strategy & Timeline

* Phases
  + Phase 1 (Weeks 1–2): Private beta—50 founders, 25 VCs; validate hypotheses and rubrics.
  + Phase 2 (Weeks 3–8): Public launch—500 founders, 150 VCs; partnerships and content.
  + Phase 3 (Weeks 9–20): Scale—2,000 users; accelerator partnerships; enterprise pilots.
  + Phase 4 (Weeks 21+): Enterprise—major VC integrations and premium analytics.
* Channels & Network Effects
  + VC/founder referrals; AMAs; success-story flywheel; data feedback loops (weekly model retraining).
* Experimentation
  + Pricing and packaging A/B; onboarding flows; ranking weight tests; guardrails for NPS.

## Pricing Strategy & Monetization

* Tiers
  + Freemium: Basic matching free.
  + Founder Premium: $99/month—advanced analytics, prioritization, deeper explainability.
  + VC Enterprise: $500/month—advanced thesis analytics, portfolio synergies, API.
  + Success Fee: 2% of funding facilitated for successful matches (opt-in terms).
* Targets & Guardrails
  + $2M ARR by month 12; 15% MoM growth; ARPA uplift +10% by Q3.
  + Guardrails: NPS impact ≤-2 vs control during pricing tests; churn ≤+1pp.
* Experiments
  + Quarterly pricing A/B (10% sample); 2-week read with decision in ≤2 weeks post-test.

## Post-Match Experience

* Intros: Request, accept/decline, status in real time; VC response median <72 hours.
* Scheduling: Calendly/Google; time zones auto-detected; ≥95% success.
* Feedback: Meeting quality and outcome tracking; ≥60% completion.
* Automation: Reminders (24h pre, 48h post); opt-out and rate limits.

## Success Metrics (Consolidated)

* Funnel
  + Intro→Meeting: 35%
  + Meeting→Term Sheet: 12%
  + Term Sheet→Funding: 65%
* Speed & ROI
  + Time-to-first-meeting: ≤5 days median.
  + Time-to-funding: 89 days median vs 180 baseline (3x faster).
* Satisfaction
  + Founder NPS >50; VC NPS >40; Explainability CSAT ≥4.2/5.
* Revenue
  + CAC <$150; LTV $2,400; CAC payback <3 months.
* Technical
  + Uptime ≥99.5%; WebSocket p95 <2s; AI p95 <30s; parse accuracy ≥90%.
* Fairness
  + Demographic parity ≥90% across consented groups.

## MVP Validation Plan

* Success Criteria
  + Onboarding completion >70%; match quality rating >4.0/5.
* Methods
  + Weekly founder/VC interviews; feedback integration cycles.
  + Bi-weekly product updates driven by usage analytics.
* Artifacts
  + Offline golden sets; behavior contracts; human review rubrics; experiment dashboards.

## Technical Considerations

* Needs: REST + WebSockets; OAuth; multi-agent orchestration; feature store.
* Integrations: Market feeds; calendar; email; VC data sources.
* Privacy: Consent and audit logs; data minimization; RBAC.
* Scale: Auto-scaling; caching; queues; performance budgets.
* Risks: Third-party rate limits, data quality, model drift, legal scraping; mitigations in place.

## Milestones & Sequencing

* Phase 0 (3–5 days): Foundations—data models, consent, skeleton UI.
* Phase 1 (2 weeks): Core matching MVP—ingestion, parsing, thesis extraction, explainability.
* Phase 2 (1.5 weeks): Workflow & real-time—intros, WebSockets, calendar.
* Phase 3 (1 week): Feedback, fairness, analytics.
* Phase 4 (1 week): GTM, community, performance, accessibility.
* Team: 1 Full-Stack Eng, 1 AI/ML Eng, 1 PM/Designer.

## Comprehensive Risk Mitigation

* Cold Start: Seed curated matches; target ≥150 curated in first 2 weeks; manual→AI share <20% by week 6.
* Data Quality: Multi-source verification; confidence scores; >90% accuracy on key fields.
* Regulatory: Quarterly legal reviews; configurable retention; 0 breaches.
* Competition: IP protection; rapid iteration; exclusivity pilots.
* Scalability: Autoscaling; circuit breakers; chaos testing; p95 <2s under 3x load.

## Accessibility & Inclusion

* Screen Readers/Keyboard: ARIA, semantic HTML, visible focus; 100% workflows accessible.
* Language: v1 English; v1.1 Spanish; v1.2 Portuguese.
* Outreach: Partnerships with underrepresented founder orgs; ≥30% new sign-ups (opt-in data).

## Strategic Evolution

* Vision Adaptation: Quarterly “Strategy & Signals” memo; annual strategic review.
* Partnerships & Exit: 5 integrations; 3 accelerator partnerships in 12 months; target acquirers tracked.
* IP: 3 filings (matching, bias, explainability) by month 6.

## Advanced AI/ML Operations

* Explainability Adoption: ≥60% sessions with tooltip interactions; CSAT ≥4.2.
* Bias Remediation: Auto-pause if parity <85%; fix ≤24h; post-mortem in 7 days.
* Data Labeling: 10K initial labels by week 8 post-launch; kappa ≥0.7; expert panel ≥90% precision.
* Active Learning: Reduce labeling by ≥30% by Q2.

## Technical Infrastructure

* Disaster Recovery: RTO 4h; RPO 1h; quarterly failovers; monthly drills.
* Infra as Code: 100% via Terraform; CIS scanning on PR; drift alerts resolved <48h.

## Security & Privacy

* Data Minimization: Collect only matching-required PII; quarterly inventories.
* Security Controls: AES-256 at rest; TLS 1.3; key rotation every 90 days; zero-trust; MFA 100%.
* Access: Privileged monitoring; quarterly reviews; 48h remediation SLA.
* Insider Threat: Behavioral analytics; 4h alert triage; <5% false positives.

## Growth & Market Expansion

* Churn Management: Exit interviews (≥50% response); win-back ≥10%; predictive churn models reduce voluntary churn ≥15% in 2 quarters.
* Pricing Optimization: Quarterly tests; competitor tracking; package optimization targeting +10% ARPA by Q3 without NPS drop.

## Legal & Compliance Framework

* IP: Patents, trade secrets, trademarks; docket reviews monthly.
* Global Data Governance: SCCs, DPAs, TIAs; regional counsel SLAs.
* Vendor DPAs: Annual reviews; SCC adherence.

## Operational Excellence

* Vendor Risk: Quarterly security assessments; no criticals >30 days; multi-vendor for critical services.
* Business Continuity: Key person coverage; runbooks; ADRs; decision authority matrix; semiannual drills.

## Performance & Improvement

* North Star Metric: Successful funding matches per month (intros → meetings → term sheets → closed rounds).
* Leading Indicators: Match acceptance rate; time-to-meeting.
* Governance: Quarterly metric review; pivot if NSM <10% QoQ for two consecutive quarters.
* Continuous Improvement: Monthly retros; quarterly operational scorecards; CAB feedback integrated.

## Living Document & Continuous Learning

* Cadence
  + Update PRD after each major experiment and at least monthly post-launch.
  + Maintain change log at top with links to results docs and dashboards.
* Post-Launch Updates
  + Add new good/bad/reject examples from real traffic to annex weekly for first 8 weeks.
  + Revise behavior contracts upon model changes; re-run golden set evaluation.
* Decision Reviews
  + Record decisions (ADR format) with rationale, data, and owners; revisit dates set.
* Retirement & Scaling
  + Each feature tagged with iterate/scale/retire decision after impact reviews.

## Appendices

### A) Offline Golden Sets Inventory

* Matching: 500 labeled founder-VC pairs with outcomes and rationales.
* Fairness: 200 parity-sensitive cases across consented groups.
* Explainability: 100 matches with “correct rationale” exemplars.
* Scoring: 10K historical pairs for calibration and lift estimation.

### B) Human Review Rubrics (Summaries)

* Relevance: 1–5 scale; requires ≥4 average on top-3 matches.
* Rationale Quality: Correctness, clarity, sourcing composite ≥4/5.
* Fairness: Pass/fail with notes; escalations to audit committee.

### C) Red-Team Scenarios Catalog

* Prompt injection in decks; data poisoning via synthetic traction; demographic proxy leakage; hallucinated sources; adversarial PDFs.
* Test cadence: Biweekly; report and remediation within 1 sprint.

### D) Rollback & Kill-Switch Runbooks

* One-click model rollback with version pinning.
* Feature flags per component (matching, explainability depth, fairness constraints).
* On-call procedures with SLAs: detection <15m; rollback <30m; comms within 1h.