AEVION QVenture — Investment Memo

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FICTIONAL EXAMPLE: the company in this example is made up; any resemblance of names is coincidental. All figures are model output on invented inputs.

NeuroDx

Healthtech / Digital Health · seed · US · raising $6,000,000

Score 67.6/100 — WATCH (conviction: medium)

Signal coverage: 59% company-specific (3 metrics parsed from the plan); remainder from sector priors.

Investment memo

Verdict: watch with a small, staged conviction bet—compelling enough to buy optionality, too unproven to lead the full round. The single strongest reason for is a genuinely differentiated science-and-moat combination: a self-supervised retinal model that turns any optometrist's chair into an Alzheimer's screening point, wrapped in a regulatory license that becomes the category's durable moat once cleared. The single strongest reason against is the reimbursement cliff—no CPT code, no payer coverage, and no broadly available disease-modifying therapy means even a cleared, accurate device could remain a cash-pay niche, and coverage lag (2–4 years past FDA) can outlast a $6M seed. Concrete plan: invest a $2.26M ticket for ~10% at the ~$16.6M pre-money anchor, hard-capping exposure at $3M, and reserve ~$3.39M for pro-rata. Tranche the money against explicit milestones—breakthrough designation granted, external multi-site validation with reported specificity/PPV, and a credible reimbursement pathway—releasing follow-on only as the FDA and payer gates de-risk.

Narrative engine: model anthropic (per-part source not recorded)

Entry strategy

Ticket: $2,258,400 target (range $1,129,200–$3,000,000)
Target ownership: 10%
Valuation band (pre-money): $8,422,400 / $16,584,000 / $33,168,000
Modelled return (not a forecast): 7.04x multiple (16.6x base) · horizon 7yr · loss prob 58%

Deployment schedule:

- 40% — Entry: On close, after founder + IP + cap-table diligence.
- 35% — Milestone: Product-market fit signal (retention cohort / first repeatable revenue).
- 25% — Pro-rata: Reserve for next priced round to defend ownership.

Portfolio: Size at ~2.1% of a diversified venture portfolio (fractional-Kelly, conviction-scaled). Reserve 3,387,600 USD for pro-rata follow-on.

Financial stress test — resilience: FRAGILE

Base LTV/CAC 5.1 -> worst-case 2.3 under combined CAC+churn shocks.

- CAC +50%: LTV/CAC 3.4
- CAC ×2: LTV/CAC 2.6
- Churn +50%: LTV/CAC 3.4
- Churn ×2: LTV/CAC 2.6
- Downturn (CAC +50% & churn +50%): LTV/CAC 2.3

Economics survive but tighten under shocks (worst LTV/CAC 2.3) — watch CAC and churn closely post-investment.

Score breakdown

Market size & growth — 66/100 (weight 14%)
~$420B TAM, 23% CAGR (Healthtech / Digital Health).

Timing / tailwinds — 78/100 (weight 5%)
Sector growth 23% vs. 12% neutral baseline.

Moat / defensibility — 66/100 (weight 16%)
regulatory license is the category's mature moat (ceiling 82), but ~66% realized at seed given disclosed traction — an unproven moat is discounted toward the 35 "no demonstrated defensibility" floor.

Unit economics potential — 64/100 (weight 15%)
Company metrics: LTV/CAC 5.1 (capital intensity 60%).

Team / execution signal — 78/100 (weight 28%)
Quantified traction: $660k MRR; 22% MoM growth.

Scientific / tech feasibility — 69/100 (weight 7%)
multimodal diagnostic models, FDA SaMD pathways, RWE evidence loops

Regulatory / legal headroom — 42/100 (weight 7%)

Regulatory intensity 90% (higher = more legal drag).

Competitive headroom — 58/100 (weight 8%)

Competitive intensity 60%. reimbursement dependency and long clinical validation cycles.

Analyst council

Research Scientist — Retinal-AI for preclinical Alzheimer's is scientifically plausible but 89% sensitivity vs PET needs external validation before 69/100 holds

+ The 69/100 feasibility score is roughly fair, arguably slightly generous. Retinal biomarkers of neurodegeneration are a real frontier — amyloid deposition, retinal nerve fiber layer thinning, and vascular changes are documented (Koronyo-Hamaoui, NeuroVision, Eyenuk work), and self-supervised vision models (e.g. Google's RETFound, 2023, trained on 1.6M retinal images) have shown transfer to systemi
+ The 89% sensitivity vs PET in 1,200 patients is a strong internal signal but under-specified on the axes that matter: reported sensitivity without specificity/AUROC is uninterpretable — a high-sensitivity, low-specificity screen in a low-prevalence (~10-15% MCI) population generates a flood of false positives. PET is also an imperfect ground truth (amyloid PET positivity "` symptomatic AD). No exte
+ 'Years before symptom onset' is the boldest claim and the least evidenced: the cohort almost certainly conflates prevalent early AD with true preclinical detection. Demonstrating lead-time requires a longitudinal cohort with follow-up conversion data, which a seed-stage 1,200-patient snapshot cannot provide.
+ Breakthrough-device designation is only *filed*, not granted — this is a De Novo/510(k)-class SaMD with a multi-year PMA-adjacent validation path. Regulatory feasibility (score 42) is the true binding constraint, not the model math; the tech can work and still take 3-5 years and a pivotal trial to clear.
! Overfitting / spectrum bias: 89% sensitivity from a single-cohort, likely enriched population may collapse on external, multi-ethnicity, multi-device (different fundus cameras) data — the classic failure mode for retinal-AI (cf. diabetic retinopathy models that degraded 10-20 points off-distribution).
! Ground-truth and clinical-utility gap: even a validated detector faces the 'so what' problem — with no disease-modifying therapy broadly available and lecanemab/donanemab access limited, payers may refuse reimbursement for pre-symptomatic screening, gutting the SaMD business regardless of accuracy.
! Regulatory timeline vs runway: pivotal validation + FDA clearance likely outlasts a $6M seed; the fragile stress case (LTV/CAC 2.3) plus 22% MoM off a tiny $55k MRR base means clinical/regulatory burn could force a raise before the science is de-risked.

Data Analyst — 64/100 unit econ is fair-to-generous: 5.1x LTV/CAC is unvalidated pre-reimbursement; payback and churn undisclosed

+ I'd hold the 64 or nudge it lower. A 5.1x LTV/CAC at 14 clinics with no disclosed payback period, churn, or CAC composition is a modeled figure, not a proven one — the stress test collapsing it to 2.3x under CAC+churn shocks confirms fragility. At seed, self-service diagnostics economics hinge on per-scan reimbursement that does not yet exist for this indication.
+ MRR discrepancy is a hard data flag: description says $55k MRR / 14 clinics, but the model and parsed metrics cite $660k MRR (12x). One is wrong. At $55k/14 clinics = ~$3.9k/clinic/mo the LTV math is plausible for a cash-pay screening add-on; at $660k it implies ~$47k/clinic, which is implausible for optometry and inflates the team/traction score (78). Reconcile before term sheet.
+ TAM is unusable as stated: $420B is the entire digital-health sector, not NeuroDx's SAM. Bottom-up: ~40k US optometry practices x realistic screening volume x cash-pay price (~$100-300/scan, no CPT code yet) is the real SAM — likely low single-digit billions, and SOM is gated on FDA clearance + payer coverage. TAM triangulation was not run; demand this.
+ Gross margin is undisclosed but is the crux of the score. A software-read on an existing retinal scan should be 80%+ GM once at scale, which would argue the 64 is too harsh — IF reimbursement lands. Absent a coverage decision, revenue is cash-pay elective screening, which caps volume and makes CAC (clinic acquisition + patient education) structurally heavy.
! Reimbursement dependency (flagged as structural risk): no CPT code or payer coverage for pre-symptomatic Alzheimer's retinal screening. Without it, TAM shrinks to cash-pay elective and the 5.1x LTV/CAC is unsupportable at scale — this is the thesis-killer, not CAC/churn.
! 89% sensitivity vs PET in one 1,200-patient cohort says nothing about specificity/false-positive rate — critical when screening asymptomatic patients for an incurable disease. High false positives create liability, patient harm, and FDA friction; specificity and PPV are the missing kill-metrics.
! Breakthrough designation is only 'filed,' not granted, and FDA SaMD clearance is 18-36 months out. Regulatory headroom scores 42 for a reason — a fragile-resilience seed burning toward an unclear clearance timeline can run out of runway before the moat (the license itself) is realized.

Economist — Retinal AD screening rides real demand, but the $420B TAM is a category mirage — the real SAM is reimbursement-gated screening, not all digital health

+ The 66/100 market score is generous as a top-line read but hides a category error: $420B 'digital health' TAM is not NeuroDx's addressable market. Bottom-up, US eye exams run ~100M/yr; if reimbursement lands a ~$100 screening code and NeuroDx captures 20% at 30% penetration of 130M at-risk adults 50+, the realized SAM is single-digit billions, not $420B. Score is defensible on CAGR (23%) and tailw
+ Demand elasticity is unusually favorable IF reimbursed: early AD detection now has a lever (anti-amyloid drugs lecanemab/donanemab need early-stage patients), so payers and pharma both have willingness-to-pay. Screening at the optometrist chair is a genuine channel innovation — near-zero marginal cost per scan on existing installed hardware turns a capex-heavy diagnostic into a software-margin bus
+ Durable rent accrues to the FDA clearance + payer coverage decision, not the model. The self-supervised vision

IP is imitable within 18-24 months; the real moat is a De Novo/breakthrough clearance plus a CPT code and guideline inclusion — a 3-5 year regulatory flywheel competitors must re-run. That maps to the model's 66 moat (unproven, discounted) correctly.

+ $55k MRR at 22% MoM across 14 clinics is real signal but is pre-reimbursement, meaning current revenue is clinic-paid/cash-pay — a fundamentally different, smaller equilibrium than the insured-screening thesis. The stress-tested LTV/CAC collapse to 2.3 tells you today's economics are cash-pay fragile and only clear the bar once payers, not clinics, foot the bill.

! Reimbursement dependency (flagged structural risk): without a CPT code and payer coverage, NeuroDx stays a cash-pay niche and the 22% MoM growth decays as early-adopter clinics saturate. Coverage decisions can lag FDA clearance by 2-4 years — a runway-lethal gap on a $6M seed.

! Clinical validation risk: 89% sensitivity vs PET in a 1,200-patient cohort is promising but single-cohort; FDA and payers will demand prospective, multi-site validation and specificity data (false positives on a low-prevalence screen destroy PPV and clinician trust). Long validation cycles are the model's own STRUCTURAL RISK and the reason regulatory headroom sits at 42.

! Competitive/asymmetry risk: incumbents (Eisai/Biogen-adjacent Dx, plasma p-tau blood tests like C2N/Quest already CMS-reimbursed) are racing the same 'early AD screen' prize. Blood-based biomarkers may reach reimbursement first and become the free/cheap incumbent that caps NeuroDx's pricing before retinal scanning proves superior specificity.

Corporate & Regulatory Lawyer — 42/100 legal headroom is fair for a pre-clearance SaMD diagnostic; regulatory drag IS the moat, but the FDA gate is unbuilt and reimbursement is unpriced.

+ The 42 score is defensible, not punitive — it measures legal DRAG, and NeuroDx sits at the intensity ceiling (90%): De Novo/510(k) clearance, HIPAA PHI custody, 50-state telehealth/optometry licensure, and FTC §5 exposure on AI diagnostic claims all stack. Honest tension: the same intensity that scores 42 here builds the 82-ceiling moat scored under defensibility. The two numbers describe one fact

+ Breakthrough-device designation is FILED, not granted — designation only speeds review, it does not lower the evidentiary bar. 89% sensitivity in a 1,200-patient retrospective cohort is not a pivotal trial; De Novo will demand prospective validation with specificity/PPV data (a screening test for a low-prevalence pre-symptomatic population lives or dies on false-positive rate, which is undisclosed

+ The $55k MRR across 14 clinics is almost certainly LDT/research-use or cash-pay screening revenue PRE-clearance — this creates FDA enforcement risk (promoting an unapproved device) and FTC §5 exposure if 'detects Alzheimer's' claims outrun the label. Confirm the current commercial claim and whether clinics are billing insurance (no CPT code = no reimbursement = the structural risk is real today, n

+ Deal structure: use 506(b) (avoid 506(c) verification friction at seed) or a post-money SAFE with a cap; but given the binary FDA/clinical milestones, demand a priced round or SAFE with milestone-based tranching, 1x non-participating pref, pro-rata, information rights, and an IP-assignment/PHI-compliance rep-and-warranty package. Verify the vision model's training data has valid patient consent an

! Regulatory timeline/capital mismatch: clearance likely costs more and takes longer than the $6M raise funds, forcing a down-round or bridge before the value-inflection FDA gate — the stress test's worst-case 2.3 LTV/CAC assumes a going concern, which pre-clearance enforcement action could end.

! Reimbursement cliff: no disclosed CPT code or payer coverage. A cleared device with no reimbursement path is a science project — Alzheimer's screening without a disease-modifying treatment benefit faces payer skepticism on clinical utility, independent of FDA success.

! Claims/liability exposure: marketing 'detects early Alzheimer's' on a screening tool invites FTC §5 deceptive-claims enforcement and product-liability/failure-to-diagnose tort risk; false positives in asymptomatic patients carry psychological-harm and litigation tail that D&O/product policies at seed rarely cover.

Market data sources

- Grand View Research (2026) — Digital health $420.2B in 2026, 23.4% CAGR 2026–2033
  https://www.grandviewresearch.com/industry-analysis/digital-health-market
- Fortune Business Insights (2026) — Digital health $491.6B in 2026 at 21.6% CAGR through 2034
  https://www.fortunebusinessinsights.com/industry-reports/digital-health-market-100227

Assumptions & limitations

- Market size / growth for Healthtech / Digital Health is anchored to Grand View Research (2026): Digital health $420.2B in 2026, 23.4% CAGR 2026–2033. Full citations are listed under "Market data sources".
- Signal coverage: ~59% of the score is backed by the plan's own disclosed metrics (3 quantified fields); the remainder uses Healthtech / Digital Health sector priors — add financials to raise it.
- Stage norms reflect US-market seed deals; adjust for geography "US".
- Score is a screening signal, not a substitute for legal, financial, and technical due diligence.

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