



SINGAPORE
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ASIAN ACTUARIAL CONFERENCE 2026

Beating the Odds: Redefining Risk

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The Future of Health Insurance Underwriting:
50 Parameters. 30 Seconds. Zero Blood Draw.

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Health Insurance Section · Powered by Blooxia AI™ Fusion (VPG · VBCG · VCS)

The Gap: APAC Underwrites Blind at the First Mile

Largest disease burden in the world — assessed with the slowest, most invasive data pipeline

14–28

days average
underwriting cycle

30–45%

applicant drop-off
at medical exam

40–65%

data completeness
at policy issuance

USD 80–600

cost per person
for a traditional MCU

- **Slow** — 3–7 business days for MCU results in most APAC markets → **Conversion loss in digital channels**
- **Invasive** — Blood draw, ECG and a clinic visit are mandatory → **Applicant abandonment at the point of sale**
- **Incomplete** — Only 40–65% of applicants finish the full data set → **Adverse selection accumulates invisibly**

Every one of these is an actuarial problem: mispriced cohorts, elevated loss ratios, and premium leakage that only surfaces in the claims run-off.

The result? Insurers unknowingly accept sub-standard lives at standard rates.

Sources: APAC insurer operational benchmarks; Salvion market analysis; Swiss Re sigma. APAC carries over 60% of the world's diabetic population.



Why AI — and Why Now

The alternatives all trade away either accuracy, coverage, or cost. AI-on-camera does not.

	Traditional MCU	Health apps	Wearables	Salvion AI
Vital Sign parameters	Full lab panel	5–10	5–10	50
Time to result	3–7 days	Instant	Continuous	< 30 seconds
Hardware needed	Clinic + lab	None	Device purchase	Smartphone camera
Invasiveness	Blood draw	None	Wearable required	None
Underwriting-grade output	Yes	No	No	Yes — API payload

Why now: transformer-based signal fusion crossed clinical accuracy in 2023–24, and every applicant in APAC already carries the sensor in their pocket.



Salvion AI in 60 Seconds

A Singapore-based health intelligence platform built for insurers, not consumers

What it is

Smartphone-only health assessment — a 30-second facial video scan, no wearable, no blood draw, no clinic.

What powers it

Blooxia AI™ Fusion Architecture: VPG (blood-flow colour change), VBCG (cardiac micro-motion) and VCS (chromatic sensing), fused by a transformer model.

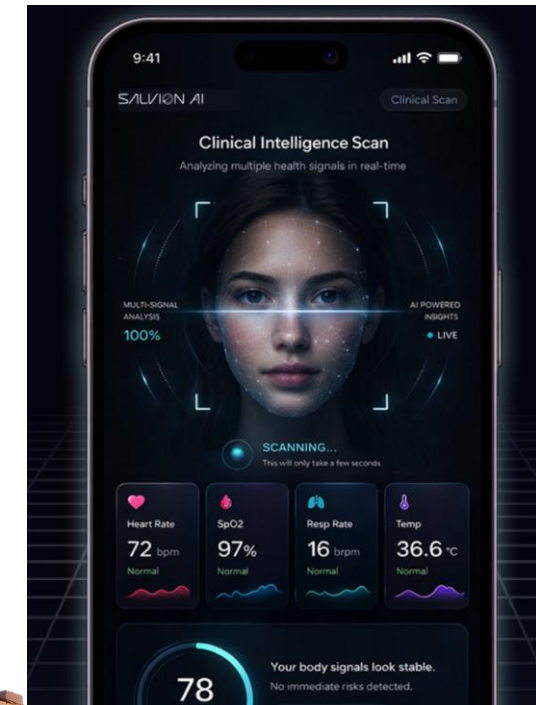
What it returns

50 vital sign parameters, 12 disease risk scores and a Health Score (0–100) — delivered as a report and a binding-ready API payload.

How it deploys

API-native into underwriting or HR systems in 2–4 weeks. On-device processing, PDPA-aligned, in-region data sovereignty.

One camera. 30 seconds. 50 parameters.



What It Measures: 50 Parameters, 12 Disease Risks

Six physiological domains from a single scan — every output explainable and auditable

A • Vital signs & cardiovascular

HR · SpO₂ · systolic & diastolic BP · cardiac output · pulse pressure

B • Physical & anthropometric

BMI · waist-to-height ratio · body shape index · biological age · body roundness index · skin age · heart age · vascular age · conicity index

C • Autonomic/ Physiological

SDNN · RMSSD · pNN50 · LF/HF ratio · Poincaré area · HRV-SD1 · HRV-SD2 · breathing rate · pulse respiratory quotient

D • Mental & stress

Stress level · sympathetic / parasympathetic activity · burnout · fatigue and 4 HRV derivatives indicating mental condition

E • Blood & metabolic

Haemoglobin · blood glucose · total cholesterol · uric acid · HbA1c proxy

F • Body composition

Body fat % · visceral fat · muscle mass · hydration · metabolic rate · muscle level · visceral fat · bone mass · TDEE and 3 more

12 disease risks: hypertension · CVD · heart attack · stroke · type 2 diabetes · hypercholesterolaemia · heart failure · metabolic syndrome · Fatty liver risk · ASCVD · Abnormal fasting glucose · Hypertriglyceridaemia

Validation: Heart rate MAPE 4.2% — Ramazhan et al. (2024), Sensors 24(23):7537. Diastolic BP 90.55% and haemoglobin 88.41% — Universitas Indonesia clinical dataset. Overall fusion accuracy 94–98% (internal validation; SGH clinical collaboration).



What It Does: From Biosignal to Underwriting Decision

The scan is the input — the output is a priced, defensible risk classification



Decision	PLF range	Extra premium	Indicative SMR
Preferred	0.85 – 0.95	–15% to –5%	< 80%
Standard	1.00	0%	80 – 120%
Sub-standard	1.125 – 2.925	+12.5% to +192.5%	120 – 400%
Postponed / Declined	—	Defer or decline	> 400%

Mortality basis: WHO Data- Singapore. Disease hazard ratios: WHO GBD 2019 and Emerging Risk Factors Collaboration. Every score decomposes into its physiological, disease-risk and demographic drivers.



LIVE DEMONSTRATION

30 Seconds. One Camera. A Full Report.

- 1 Open salvion.app on the phone — screen mirrored to this display
- 2 Position face in frame, normal indoor lighting
- 3 30-second scan — parameters compute live on screen
- 4 Health Score, 50 parameters and PDF report generated instantly



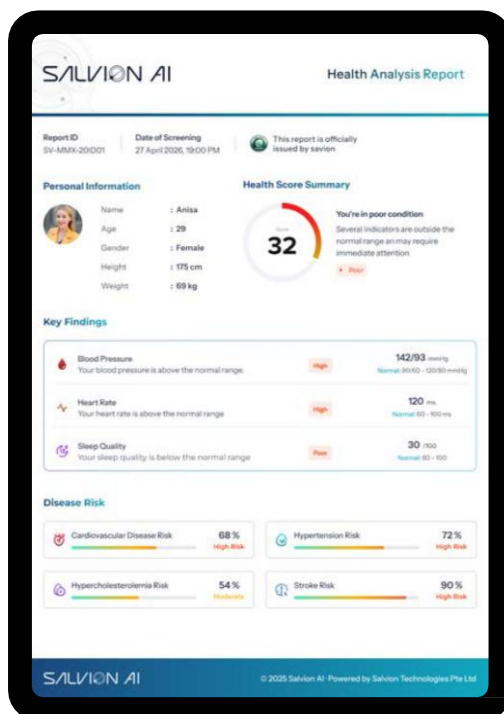
salvion.app

Presenter's phone is mirrored to the main screen — scan the code to run it on your own device during the session.

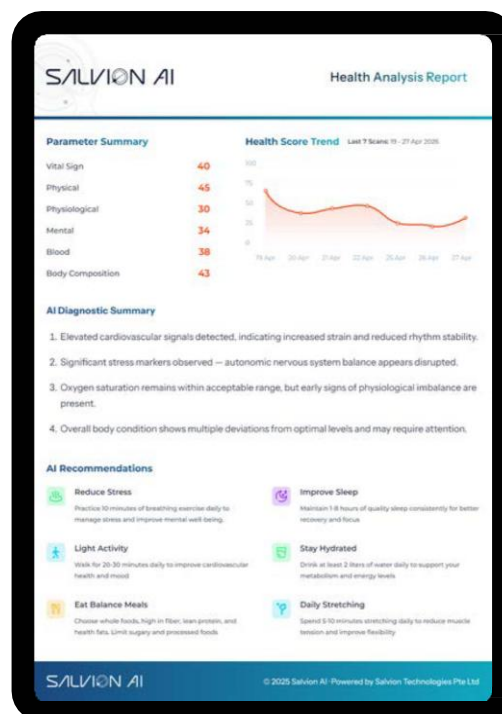


The Output: A Complete, Explainable PDF Report

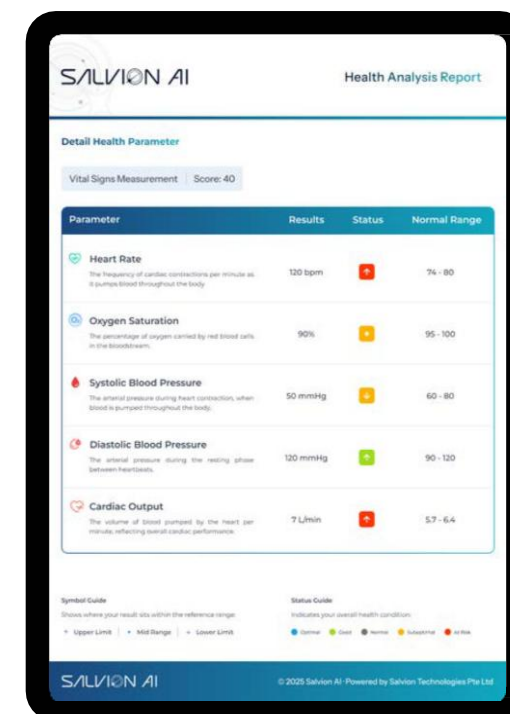
Every scan returns a structured underwriting report — and the same data as a binding-ready API payload



Health Score & key findings



Parameter summary + AI diagnosis



Per-parameter detail & status

Explainable by design: every score decomposes into its physiological, disease-risk and demographic drivers — auditable, and ready for regulator and reinsurer review.



The Actuarial Impact: Closing the Adverse Selection Gap

Scenario: regional insurer, 50,000 policies per year across four APAC markets

1 • RISK SELECTION Underwriting

BEFORE

40% data completeness; sub-standard lives issued at standard rates

AFTER

92% completeness; 12 disease risks flagged before issuance

ACTUARIAL METRIC

Data coverage +52pp • drop-off 38% → <8%

2 • DYNAMIC PRICING Rating

BEFORE

Flat, judgmental loadings applied on partial evidence

AFTER

Parameter-driven PLF from Health Score + disease risk

ACTUARIAL METRIC

Tighter SMR distribution • less variance

3 • PORTFOLIO Valuation & in-force

BEFORE

Static issue-date snapshot; risk drift invisible until claim

AFTER

Annual re-scan builds a longitudinal risk trajectory

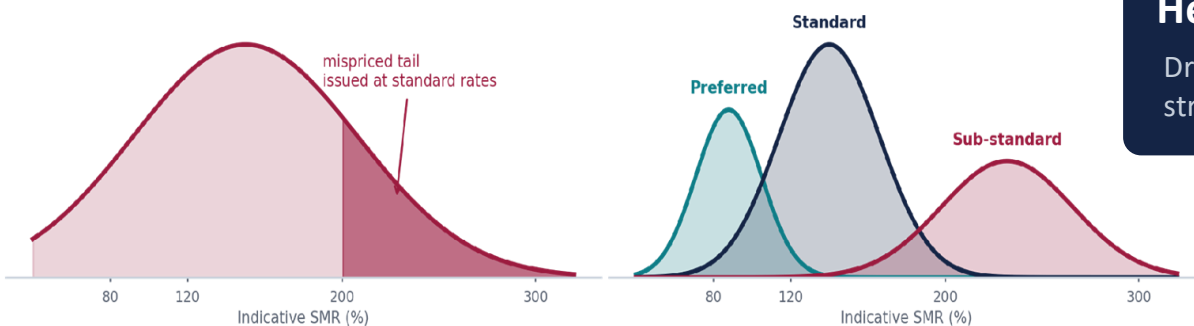
ACTUARIAL METRIC

–5 to –8 pp loss ratio target • 4–10× ROI in 24 mths

From a binary pass/fail book to a precision-stratified one

BEFORE — one wide, unstratified pool

AFTER — precision-stratified by PLF band



ACTUARIAL PROOF one life, priced end to end

Health Score 46 → Sub-standard → PLF 1.45 → +45% premium

Drivers, each traceable in the report: BP 142/93 (high) • hypertension risk 72% • CVD risk 68% • stroke risk 90%. Same 0–100 score, same PLF table, same audit trail for every life in the cohort.

9 Worked example is illustrative, using the demo scan output and the PLF table on slide 6; distribution curves are schematic, not fitted to a book. Ranges are modelled outcomes from Salvion AI deployment analysis and APAC insurer operational benchmarks.



Beating the odds means seeing them first.

Underwriting has been constrained by the cost of data collection, not by the limits of actuarial science. That constraint is now removable.

- **50 parameters + 12 disease risks in 30 seconds**
from a camera every applicant already owns
- **Zero friction, zero blood draw**
completion rises from ~60% to 85–95%
- **Actuarial-grade output**
SMR, PLF and a decision — explainable and auditable
- **Deployable now**
API integration in 2–4 weeks, PDPA-aligned, APAC-calibrated

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Questions welcome — pricing impact, loss ratio, regulatory acceptance (PDPA, APAC data sovereignty).

