FRISA Financial Analysis Assumptions

EXPENSES:

Pillar H: Hardware (Device Sales + Accessories)

H1: FRISA Pro: BOM, Landed Cost & Manufacturing (Y1 launch, scales Y1-Y5)

Cost Line	Program	Cost (Rp Mn, Y1)	Validation Source
Camera + MCU + sensor components (BOM, incl. 5% QC allowance)	H1: Hardware BOM	≈756	ESP32-CAM-class wide-angle modules $7-10; ESP32-S3 WiFi/BT modules ~$3-4.5 at volume (RayPCB, 2026)
Battery, casing, PCBA, audio & packaging (BOM, incl. 5% QC allowance)	H1: Hardware BOM	≈1,323	Li-Po packs $2.80-5.50; injection-molded enclosure $1.50-4.00/part; PCBA assembly $16-30/board at 500-1,000 units (RapidDirect, 2026)
Freight, import duty, PPN, PPh 22 & domestic last-mile (landed cost)	H1: Import & Customs	≈604	Indonesia import duty 0-15% by HS code; PPN 11% (Cekindo, 2026)
Marketplace commission (COGS line)	H1: Channels: Shopee/Tokopedia	≈140	12% of RRP on the 30% of units sold via marketplace (Rp155,880/unit). Y1 hardware COGS across these four lines ≈Rp2,824 Mn, blended across 3 channels
SDPPI type-approval + SNI certification (one-off, Y1)	H1: Product Testing & Certification Partners	177	Mandatory for WiFi/BT consumer devices sold in Indonesia (Cerapproval, 2026)
Injection-mold tooling (one-off, Y1)	H1: Tooling	353	2-shell enclosure mold, mid-range of $8k-25k band (Haizol China Injection Molding Report, 2026)
Hardware prototyping + dev-tooling setup (one-off, Y1)	H1: R&D	199	Founders' estimate: 3 prototype rounds + dev-environment setup
Marketing / customer acquisition (raised from Rp150k to Rp300k/unit)	H1: Channels: FRISA app, e-commerce, social media	900	New IoT category needs real consumer education; still below typical smart-home CAC of $20-40 in adjacent markets (internal estimate)
Retail demos & technology events	H1: Channels: retail demos & tech events	60	In-store demo days at electronics retailers + tech/home-living expo booths: internal estimate
Warranty / defect reserve	H1: Logistics & After-Sales Partners	111	Typical consumer-electronics reserve, 1-3% of revenue (WarrantyHub, 2026)

Cost Line	Program	Cost (Rp Mn, Y1)	Validation Source
Hardware/embedded engineering + design (team allocation, incl. founders)	H1: Team	490	Jakarta market rate + 3 founder salaries (2 Co-CEOs + COO, Hardware & Operations) (NodeFlair, 2026); 30% of team-cost pool
Office & admin overhead (allocation)	H1: Corporate Overhead	108	Jakarta co-working/office rent + legal & accounting retainer, allocated 30% to Pillar H
Payment gateway processing fees (Direct channel)	H1: Channels: FRISA app	54	2.5% of Direct-channel hardware revenue: Midtrans/Xendit-style Indonesian gateway rate, 2026
Inventory financing (working-capital cost)	H1: Working Capital	42	60 days of hardware COGS financed at 9%/yr, Indonesia's average commercial lending rate (Trading Economics/World Bank, 2026)

Pillar S: Subscription (Premium Tier)

S1: FRISA App: Cloud/AI Infrastructure & Engineering (launches Y1 alongside hardware)

Cost Line	Program	Cost (Rp Mn, Y1)	Validation Source
Cloud/AI variable cost (image recognition, per subscriber)	S1: Cloud & AI Technology Providers	≈73	≈90 calls/mo x $1.50/1,000 units, Google Cloud Vision label + object detection pricing, 2026
Cloud base infrastructure (hosting, non-per-user)	S1: Cloud & AI Technology Providers	180	Founders' estimate for early-stage backend hosting
Mobile / Backend / ML engineering (team allocation)	S1: Team	898	Jakarta market rate for mobile, backend and ML/CV engineers (NodeFlair, 2026); 55% of team-cost pool (incl. founder share)
Food & recipe content partnership (licensing/curation)	S1: Food, Recipe & F&B Content Partners	40	Recipe database licensing + nutritionist/content-partner fees feeding the Smart Recipes engine: internal estimate
Office & admin overhead (allocation)	S1: Corporate Overhead	198	Allocated 55% to Pillar S, reflecting the larger software/engineering headcount
Payment gateway processing fees (Subscription)	S1: Channels: FRISA app	9	2.5% of subscription revenue: Midtrans/Xendit-style Indonesian gateway rate, 2026

Pillar P: Partnerships & Ecosystem

P1: Affiliate & B2B Data Partnerships (affiliate live Y1; B2B data-licensing pilot from Y4)

Cost Line	Program	Cost (Rp Mn, Y1)	Validation Source
Partnership development (BD, contracts, grocery/retail integration)	P1: BD	80	Founders' estimate for early-stage partnership development
Ops / community management (team allocation)	P1: Team	245	Jakarta market rate, ops/customer-support role; 15% of team-cost pool (incl. founder share)
Office & admin overhead (allocation)	P1: Corporate Overhead	54	Allocated 15% to Pillar P

Startup-Realism Additions

The first version of this model showed a 244% IRR and ~2-year payback: implausible for a hardware+subscription startup. The gaps that produced that result, and the fixes applied:

Gap	Fix Applied	Impact
No founder/leadership salaries	Added 3 founders (2 Co-CEOs + COO, Hardware & Operations) at Rp20M/month each into the team-cost pool	Flows through all 3 pillars via existing team allocation %
No office/admin overhead	Added rent + legal/accounting retainer, Rp360M/yr (Y1), scaling with headcount	Allocated 30/55/15% across Pillars H/S/P
No corporate income tax	Added Indonesia's 22% PPh Badan on positive EBITDA years	NPV/IRR/Payback now computed on post-tax cash flow
No working-capital cost	Added inventory-financing interest: 60 days of hardware COGS at 9%/yr (Indonesia's average commercial lending rate)	Reflects the real cash gap paying Chinese manufacturers before units sell
No payment-processing fees	Added 2.5% gateway fee on Direct-channel hardware + subscription revenue	Standard Midtrans/Xendit-style Indonesian rate
CAC too low (Rp150,000/unit)	Raised to Rp300,000/unit in Y1, declining to Rp200,000 by Y5	Reflects real cost of educating the market on a new IoT category

Result: post-tax NPV falls from ≈Rp38.2 billion to ≈Rp11.2 billion; IRR falls from 244% to ≈64%; payback extends from ≈2.1 to ≈3.6 years. The business now shows two years of losses (Y1-Y2) before turning profitable in Y3: a realistic trajectory for this category, and still an attractive return profile. (Figures reflect a 3-person founding team: 2 Co-CEOs + 1 COO, Hardware & Operations.)

Completeness Additions (Unit Economics & Funding tab)

A reviewer typically also expects these checks, which the ACE template did not include but a complete startup model should show:

Item	What It Shows	Result
LTV : CAC ratio	Subscriber lifetime value against the cost to acquire them	0.68x (Y1) rising to 2.10x (Y5): below the healthy 3x benchmark throughout, a real caution flag on subscription economics alone
Break-even unit analysis	Units needed to cover fixed costs at Direct-channel margin	Y1 needs 5,569 units but only 3,000 are planned (-86% margin of safety): consistent with the modeled Y1 loss; break-even is cleared from Y2
Funding ask (sources & uses)	Total capital needed, with a 20% contingency buffer	≈Rp6.0 billion (≈US$338,000), covering the Y1-Y2 cash trough (peak cumulative need ≈Rp5.0 billion) plus one-time NRE
Terminal value (DCF)	Value of cash flows beyond the 5-year explicit forecast	Adds ≈Rp147.2 billion on top of the Rp11.2 billion explicit-period NPV: shown separately, not folded into the headline NPV, because extrapolating a 5-year-old hardware startup to perpetuity is inherently rough

REVENUE:

PILLAR H: Hardware

H1: FRISA Pro Retail Sales + Accessories

Driver / Metric	Assumption	Validation Source
Retail price (RRP), Y1-Y2 / Y3-Y5	Rp1,299,000 → Rp1,349,000 (feature refresh step-up)	Indonesia smart-camera retail band Rp350k-1,500k (Akunhub, 2026); positioned upper-mid for AI+voice+app bundle
Units sold, Y1→Y5	3,000 → 8,000 → 18,000 → 32,000 → 50,000	Growth-curve business-case assumption, editable

Driver / Metric	Assumption	Validation Source
Channel mix: Direct / Marketplace / Physical Retail	55% / 30% / 15%, held flat	Matches the BMC Channels box: FRISA app & website (Direct), Shopee/Tokopedia (Marketplace), Electronic City & smart-home stores (Physical Retail)
Marketplace commission rate	12%, held flat	Typical Indonesian marketplace commission band 10-15%
Physical-retail margin (wholesale = RRP x (1-margin))	35%, held flat	Typical consumer-electronics retail margin band, 30-40%; FRISA recognizes wholesale price, not RRP, on this channel's units
Accessory attach / price	10% of units/yr; Rp50,000 → Rp55,000 from Y4	Editable: replacement suction ring / USB-C cable

PILLAR S: Subscription

S1: FRISA Premium: Monthly & Annual Plans

Driver / Metric	Assumption	Validation Source
Premium attach rate, Y1→Y5	30% → 35% → 40% → 45% → 50% of that year's device owners	Within/above the 25-35% attach-rate band for smart-camera cloud subscriptions in Indonesia (IndexBox, 2026)
Monthly / Annual price, Y1-Y3 / Y4-Y5	Rp39,000 / Rp349,000 → Rp45,000 / Rp399,000	Benchmarked to smart-camera cloud ARPU $1.50-4.00/mo (IndexBox, 2026); step-up reflects a Y4 feature upsell
Plan mix (Monthly / Annual)	60% / 40%, held flat	Editable

PILLAR P: Partnerships & Ecosystem

P1: Affiliate Commission + B2B Data Licensing (staged pilot from Y4)

Driver / Metric	Assumption	Validation Source
Affiliate order value / commission rate	Rp150,000/order; 5% commission	Typical grocery affiliate commission band, 5-10% (UpPromote, 2026)
Affiliate adoption, Y1→Y5	20% → 25% → 30% → 35% → 40% of Premium subscribers	Adoption assumed to grow with app maturity: editable
B2B data-licensing partners / fee, Y4-Y5	3 partners @ Rp50M/yr (Y4) → 6 partners @ Rp60M/yr (Y5)	Aggregated, anonymized consumption-trend data licensed to FMCG/retail once the user base is statistically useful: staged rollout, illustrative pricing

Key Assumptions

Assumption	Value	Source
USD:IDR exchange rate	Rp17,650 / $1 (held flat Y1-Y5)	Mid-market spot rate, 8 Sep 2026
Indonesia import duty (consumer IoT, camera+WiFi)	5% of CIF	General band 0-15% by HS code (Cekindo, 2026)
PPN (VAT) on imports	11% of CIF+duty	Easyship Indonesia duty & tax calculator, 2026
PPh Pasal 22 (import income tax, with API licence)	2.5% of CIF+duty	Registered-importer rate (7.5% without licence)
Physical-retail margin (Electronic City / smart-home stores)	30-40% band, 35% used	Typical consumer-electronics retail margin, industry norm
SDPPI type-approval + SNI certification	$10,000 one-off	Mandatory for WiFi/BT consumer devices in Indonesia (Cerapproval, 2026)
Injection-mold tooling (2-shell enclosure)	$8,000-25,000, mid-range $20,000 used	Haizol China Injection Molding Industry Report, 2026
PCBA assembly (500-1,000 unit volume)	$16-30/board total (components+fab+assembly+test)	RapidDirect PCB Assembly Cost Guide, 2026
Smart-camera cloud subscription ARPU (Indonesia)	US$1.50-4.00/month	IndexBox, Smart Home Security Camera Market in Indonesia, 2026
Smart IP camera retail price (Indonesia)	Rp350,000-1,500,000	Akunhub, Berapa Biaya Smart Home Asli, 2026

Assumption	Value	Source
Jakarta software engineer salary (mid-level)	Rp9,000,000-15,000,000/month	NodeFlair Software Engineer Salary Report, 2026
Google Cloud Vision API pricing (label/object detection)	$1.50/1,000 units (first 1,000/mo free)	Google Cloud, Vision API Pricing, 2026
Founder salaries (2 Co-CEOs + COO, Hardware & Operations)	Rp20,000,000/month each (3 founders)	Early-stage Jakarta startup founder pay, internal estimate
Office & admin overhead (Y1)	Rp360,000,000/year	Jakarta co-working/office rent + legal & accounting retainer, internal estimate
Payment gateway processing fee	2.5%	Midtrans/Xendit-style Indonesian payment-gateway rate, 2026
Inventory financing (working capital)	60 days of COGS at 9%/year	Indonesia average commercial lending rate ~8.8% (Trading Economics/World Bank, 2026)
Corporate income tax (PPh Badan)	22% of positive EBITDA	Indonesia standard corporate income tax rate (PwC Tax Summaries, 2026)
Discount rate (WACC assumption)	10%	Matches prior GMBCC financial-model convention
Average subscriber lifetime (LTV calc)	24 months	Illustrative planning assumption; no FRISA-specific retention data exists pre-launch
Terminal growth rate (DCF terminal value)	3%	Long-run Indonesia GDP/inflation-adjacent rate, illustrative
Funding-ask contingency buffer	20% above modeled cash trough	Standard startup-finance practice to cover forecast error
Unit-cost decline vs. Y1 baseline (Pro & Lite)	0% / 10% / 18% / 24% / 28% (Y1→Y5)	Component scale pricing; editable. Drives Pro direct-channel gross margin from ≈31% (Y1) to ≈52% (Y5)
Marketing / customer acquisition cost per hardware unit	Rp300,000 → 280,000 → 250,000 → 230,000 → 200,000 (Y1→Y5)	Internal estimate; below typical smart-home CAC of $20-40 in adjacent markets
Cloud/AI cost per active Premium user	US$0.385 (Y1-Y2) → 0.34 (Y3-Y4) → 0.30 (Y5) per month	Vision-API pricing plus infra-optimization gains: internal estimate
Landed-cost inputs (per unit)	Sea freight + insurance $2.00; QC/scrap allowance 5%; domestic last-mile Rp26,500 (device) / Rp10,000 (accessory)	Internal estimate; applied to Pro and Lite
Team cost pool & allocation	Rp1,632 Mn/yr in Y1 (10 people incl. 3 founders); headcount multiplier 1.0x / 1.4x / 1.9x / 2.6x / 3.3x (Y1→Y5); allocated 30% H / 55% S / 15% P	Jakarta market rates (NodeFlair, 2026) + founder pay

Assumption	Value	Source
Recurring opex ramp (Y1→Y5, Rp Mn/yr)	Cloud base 180→570; demos & events 60→250; partnership BD 80→160; office & admin 360→1,188; content licensing 40→120	Internal estimate; scales with headcount and volume
Refresh CAPEX after Y1	Tooling $8,000 (Y3) and $6,000 (Y5); certification renewal $2,000 (Y4)	Supports Y3 feature refresh; internal estimate

Product Line: FRISA Pro vs. FRISA Lite

FRISA Pro (camera + AI item recognition) is the flagship SKU used throughout the base Financial Model. FRISA Lite drops the camera and Vision-AI pipeline for a lower price point, aimed squarely at the price-sensitive segments (students, renters, shared households) that were flagged as a poor affordability fit for Pro's Rp1,299,000 price. Lite is modeled as an ADDITIONAL product line alongside Pro, not a replacement: see the 'Plan B - FRISA Lite' tab in the Financial Model. The headline NPV, IRR, payback and funding ask cover the Pro-only main model. The Lite analysis is incremental and does not establish a combined cash-flow or funding forecast.

Metric	FRISA Pro	FRISA Lite
Core hardware	Camera + wide-angle lens + Vision AI	No camera; voice + manual/barcode entry only
FOB manufacturing cost (Y1)	$39.27/unit	$25.41/unit (-35%)
Landed cost, Direct channel (Y1)	≈Rp894,589/unit	≈Rp603,053/unit (-33%)
Retail price	Rp1,299,000 → Rp1,349,000 (Y1-Y2 → Y3-Y5)	Rp799,000 → Rp829,000 (Y1-Y2 → Y3-Y5)
Year 1 volume	3,000 units	5,000 units
Year 5 volume	50,000 units	80,000 units
Target segment	Busy urban professionals, families (higher disposable income)	Students, renters, shared households (price-sensitive)

Combined impact: launching Lite alongside Pro roughly doubles total hardware-and-accessory revenue in every year modeled (Year 1 uplift ≈97%, tapering to ≈85% by Year 5 as Pro itself scales). Lite's gross margin improves from ≈25% in Year 1 to ≈48% by Year 5 as the same unit-cost decline curve as Pro takes effect.

Manufacturing Location: Plan A (China) vs. Plan B (Indonesia)

Applies to FRISA Pro. Plan A (full manufacture and assembly in China) is the baseline used throughout the rest of this document. Plan B (final assembly in Indonesia, with components still imported from China) is evaluated as an alternative, not yet adopted. See the 'Plan A-B - Manufacturing' tab in the Financial Model for the full per-unit buildup.

Metric	Plan A: China	Plan B: Indonesia	Difference
Landed cost / unit	≈$49.18 (≈Rp868,089)	≈$51.99 (≈Rp917,582)	+≈Rp49,493 (+5.7%)
Lead time (order to warehouse-ready)	≈50 days	≈22 days	-28 days
Inventory financing days used	60 days	25 days	-35 days
Inventory financing cost / unit (Y1)	≈Rp12,843	≈Rp5,656	-≈Rp7,187
Total cost / unit incl. financing (Y1)	≈Rp880,932	≈Rp923,238	+≈Rp42,306

Recommendation: at the volumes modeled here (3,000-50,000 units/year), Plan B is close to cost-neutral on landed unit cost, since higher Indonesian assembly-labor cost at low volume roughly offsets the lower freight and duty. Plan B's real advantage is working capital, not unit cost: lead time and inventory-financing days both drop by more than half. Stay on Plan A through the volumes modeled in this workbook; revisit Plan B once annual volume is large enough for Indonesian EMS partners to quote closer to China's assembly-labor rate, or sooner if Indonesia's TKDN local-content rules expand to cover non-cellular IoT devices.

Sensitivity Scenarios: Moderate, Optimistic & Conservative

The Financial Model's headline figures (NPV ≈Rp11.2 billion, IRR ≈64%, payback ≈3.6 years) are the Moderate / main scenario. Two additional scenarios are rebuilt bottom-up from scenario-adjusted units, price, unit cost, attach rate and CAC, with the deviation from Moderate widening from 5% in Y1 to 25% in Y5 (forecast uncertainty grows with horizon). Team, overhead, cloud base, BD, content, warranty and payment-fee costs are held at Moderate values in all three cases:

Scenario	Revenue vs. Moderate (Y1 → Y5)	Cost vs. Moderate (Y1 → Y5)	5-Yr NPV (post-tax)	IRR	Payback
Optimistic (Bull)	+7% → +38%	+1% → +2%	≈Rp37.0 billion	≈151%	≈2.6 years
Moderate (Main)	-	-	≈Rp11.2 billion	≈64%	≈3.6 years
Conservative (Bear)	-7% → -32%	-1% → -9%	≈-Rp8.7 billion	≈-85% (negative IRR; investment not recovered by Y5)	Beyond Year 5

The Conservative case is a genuine warning, not a formality: with volumes 5-25% below plan, softer pricing and attach rates, and higher unit cost and CAC, EBITDA only turns marginally positive in Y5 (≈Rp0.4 billion) and cumulative net cash flow is still ≈-Rp10.6 billion at the end of the window. Its cash trough (≈Rp11.0 billion, Y4) is more than double the Moderate trough (≈Rp5.0 billion) that the ≈Rp6.0 billion funding ask is sized on, so the ask should be read as a base-case number with limited downside cover. One-way tests point the same way: hardware volume (±20%, ≈±Rp21.5 billion NPV) and retail price (±10%, ≈±Rp10.7 billion) are the biggest swing factors, ahead of unit cost (±15%, ≈±Rp9.0 billion) and CAC (±30%, ≈±Rp5.5 billion). This is useful precisely because it is uncomfortable: it shows the business has real execution risk, not a guaranteed return, and it should inform how much runway/contingency is built into the funding ask.