

Somnus

Closed-Loop Sleep Health — Where the Work Is

A flywheel where each treated patient improves the routing of the next. The hardware is in motion. The IP is filed. This briefing maps the software platform that turns those into a flywheel — and where senior software, cloud, mobile, and security work moves the needle most.

FLYWHEEL COMPONENTS

7

IP PORTFOLIO

~15 applications · ~300 claims

RECIPIENT

Jon Fowler

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Sleep health is a closed-loop problem solved by open-loop systems.

~103 million U.S. adults live with upper airway dysfunction — 83.7M with obstructive sleep apnea, ~20M primary snorers. The category is enormous and undertreated.

The sleep diagnostics and therapy market is built around discrete events. A sleep study. A device prescription. A nightly compliance check. Each step lives in its own data silo. None of them talk to the next.

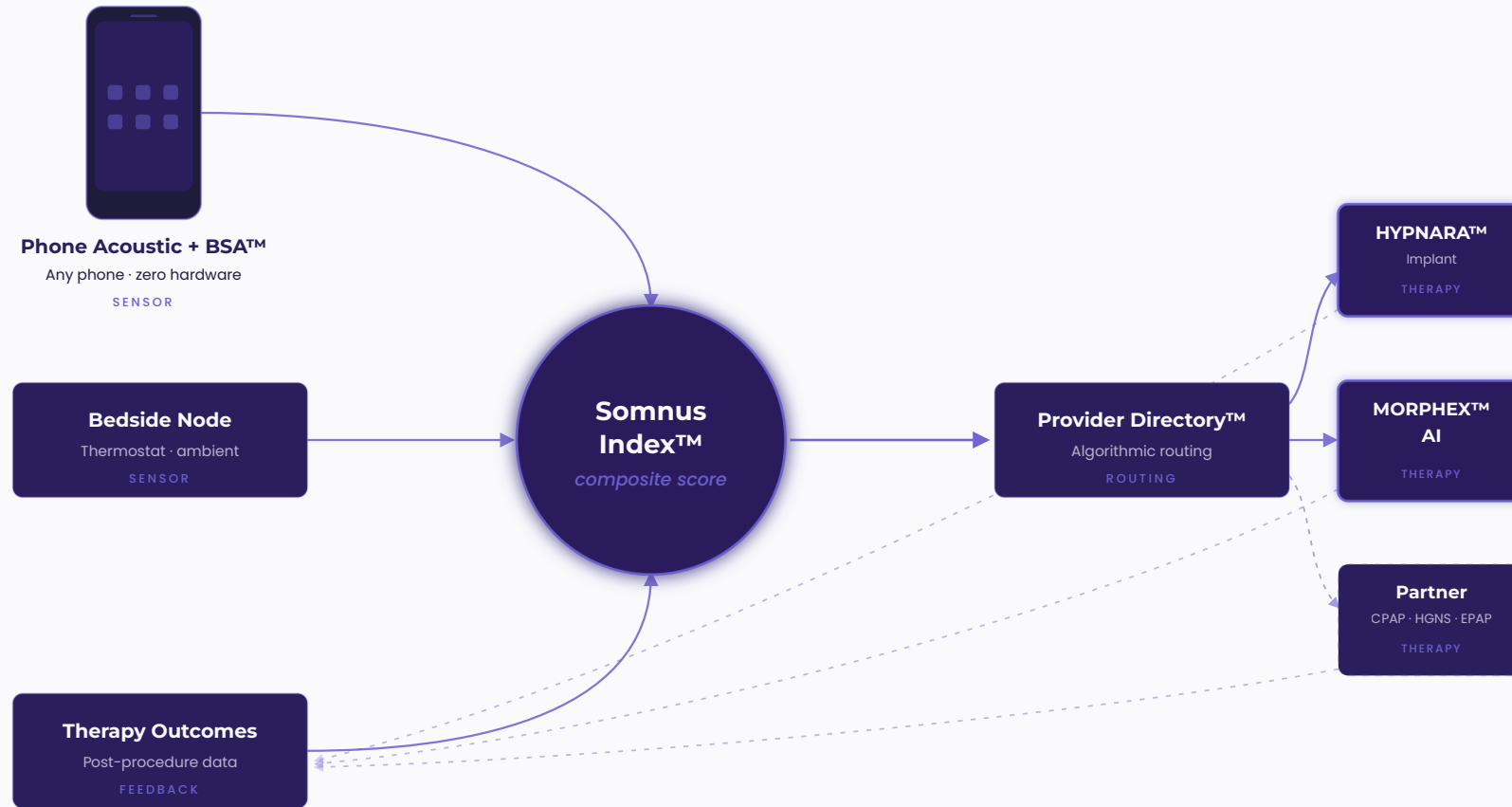
The result is a market where ~80% of obstructive sleep apnea remains undiagnosed (Benjafiel et al., *Lancet Respir Med* 2019), CPAP non-adherence sits at 46% by ninety days (Patil et al., *JCSM* 2019), and the patients who fall off therapy are not routed anywhere — they simply disappear from the funnel.

What is missing is the loop. A platform that ingests sleep data continuously, scores it consistently, routes patients to the right therapy, captures outcomes after the procedure, and re-routes when the outcomes don't improve. That loop does not exist anywhere in the market today.

Somnus is building it. The hardware tracks (MORPHEX™ AI oral appliance, HYPNARA™ palatal implant) and the IP portfolio (~15 applications, ~300 claims) are advancing. The software platform that closes the loop is partway built.

Sources: Sönmez et al., *Respir Med* 2025 (US OSA prevalence, n=83.7M, 2024 data); Benjafiel et al., *Lancet Respir Med* 2019 (undiagnosed rate); Patil et al., *JCSM* 2019 (CPAP adherence); primary-snorer estimate informed by Deliwala et al., *npj Digital Medicine* 2024 and internal analysis.

Seven components. Each turn improves the next patient's routing.



Sensors → Bedside Node → Somnus Index™ → Provider Directory → Therapy → Outcomes → Re-scoring & Re-routing → back to Sensors.

Somnus Index™ is a wellness metric under FDA General Wellness Policy. Not a medical device.

What's built. What's partial. What's open.

#	COMPONENT	STATUS	STATE OF PLAY	SKILLS THAT FIT
1	Sensors — Phone Acoustic + BSA	Partial	Expo / React Native app live on Cloudflare Pages. Acoustic capture works in the browser. Native iOS recording, HealthKit live build, and battery-resilient overnight capture are not production-grade yet.	Mobile (iOS / Expo)
2	Bedside Node — Thermostat / Ambient	Open	Patent filed — smart thermostat as ambient sleep sensing node, no prior art found. The software does not exist. Needs IoT pairing, secure handshake to common thermostat platforms, normalized ingestion, and an N-source fusion pipeline that degrades gracefully when nodes are missing.	Cloud / IoT / Security
3	Somnus Index™ — Composite Score	Partial	Algorithm fully specified — sleep-dominant weighting, sleep-gated metrics, FDA General Wellness compliant. Reference engine partial. Needs production scoring service, weight provenance audit chain, and per-metric contribution display running on real user data.	Cloud / Backend
4	Provider Directory — Algorithmic Routing	Open	Static UI mockup only. The patentable invention is the routing engine itself — rank providers by phenotype, comorbidity, geography, insurance, and outcome history of similar patients. Filing planned. No working code yet.	Cloud / ML / Backend
5	Therapy Modalities — MORPHEX™ AI / HYPNARA™ / Partner	Partial	Hardware tracks advancing. Software bridge to therapy state is not — device pairing, prescription delivery, compliance telemetry, partner-pathway adapters for CPAP, HGNS, EPAP. FHIR R4 dual-output architecture spec'd but not implemented.	Mobile / API / FHIR
6	Therapy Outcomes — Post-procedure Capture	Open	No closed-loop outcome data path yet. Pre / post-treatment scoring needs longitudinal ingestion, treatment-tagged sessions, provider annotation surface, and PDF / FHIR export. This is the data asset that compounds — and the foundation of a clinical study with HYPNARA™.	Cloud / Data Eng.
7	Re-scoring & Re-routing — Feedback Loop	Open	The closed-loop master claim that ties the flywheel together. Needs an outcomes-aware retraining pipeline aligned with FDA's Predetermined Change Control Plan, an audit trail for every model update, and a re-routing service that flags patients whose Index is not improving. Architecturally absent today.	Cloud / ML / Compliance

Status legend: Built / IP filed · Partial — needs work · Open territory

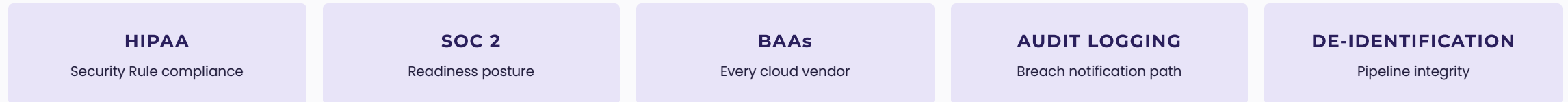
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Patent-pending across the family. Some filings are anchored; others are queued for filing through Q2/Q3 2026. Specific filing status available under separate cover with EIP (Amy Salmela, Partner).

One layer runs through all seven.

Beyond the seven components, there is one cross-cutting layer that everything downstream depends on — HIPAA Security Rule compliance, SOC 2 readiness, BAAs with every cloud vendor, audit logging, breach notification, and de-identification pipeline integrity.

It is not a single component on the flywheel. It is the spine. Standing this layer up correctly clears the path for a clinical study, an investor close, and an FDA submission for the device side. It matters more than any one of the seven.



Five entry points. Ranked.

1 Closed-loop architecture (components 6 + 7)

Highest leverage in the portfolio. The outcomes data pipeline plus the re-scoring and re-routing service is the single piece that turns a stack of patent claims into a working flywheel. Done right — FDA PCCP-aligned, audit-ready — it is also what unlocks a clinical study with HYPNARA™. If the HYPNARA™ study moves to front and center, this is the critical path.

2 AI Referral Engine (component 4)

The provider routing engine is its own filing. A working prototype, even a thin one, turns a paper claim into something demonstrable. This piece is also licensable on its own — a hospital system could license routing without licensing the rest of the platform — so it is a separate commercial asset.

3 Bedside Node IoT integration (component 2)

Smart thermostat as an ambient sleep sensing node has no prior art. The patent is filed. The software is open. Pairing, secure ingestion, and N-source fusion with graceful degradation is a clean greenfield project. Small enough to be a sixty-day deliverable, defensible enough to stand on its own as a demo.

4 Security spine (cross-cutting)

HIPAA architecture, SOC 2 readiness, encryption at rest and in transit, key management, BAA inventory. Not glamorous. Blocks everything downstream — investor diligence, IRB approval for a clinical study, FDA submission for the device side. The right person on this layer is hard to overvalue.

5 Mobile production hardening (component 1)

Native iOS overnight acoustic capture, HealthKit live integration, signed builds, TestFlight pipeline. Less novel, but it is what gets the BSA app past being a web demo. Right fit for someone deep in iOS.

Hybrid setup. Fast workflow. Clean audit trail.

Strategy, IP coordination, attorney communication, and document production happen through Claude in the Somnus project. Code, builds, source-tree audits, Cloudflare deployments, and anything that needs authenticated access to the Somnus environment happen through Claude Code in the local development tree. Findings flow between the two.

A senior contributor working on any of the components above plugs into both surfaces. Fast workflow. Clean audit trail.

Clinical & Strategic Advisors

Agustin J. Arrieta, MD — Otolaryngology / Sleep Medicine — clinical advisor and HYPNARA™ candidate-evaluation reference.

Mike Kremkau — Strategic Advisor — industry veteran.

Counsel of record

Patent / IP — Amy Salmela, Partner (EIP) — prosecution, USPTO assignments, freedom-to-operate.

Regulatory — Jeffrey K. Shapiro, Partner (King & Spalding) — FDA Life Sciences, 510(k), GWP.

Corporate — John R. McDonald, Shareholder (Godfrey & Kahn) — corporate, financing.

Two ways in. Not mutually exclusive.

LEFT · INVENTOR TRACK

Named inventor on filings

Substantive technical contribution to a patentable component — closed-loop architecture, routing engine, bedside node fusion algorithm, re-scoring pipeline — earns named-inventor status on the relevant filing. Inventor assignment to Somnus Technologies, Inc. is standard. The credit on the patent is permanent.

RIGHT · EQUITY TRACK

Equity in Somnus Technologies, Inc.

For senior contributors taking on a core component or the cross-cutting security spine, equity is on the table. Vesting and cliff are standard founder-friendly terms, sized to the scope and the stage of the engagement. Pre-seed cap table; meaningful ownership is still possible for the right person taking on the right work.

Inventor assignment to Somnus Technologies, Inc. is standard on any inventive contribution. Co-founder equity structure mirrors the HYPNARA™ inventor pattern.

A short scoping conversation.

The five ranked areas are the live work. The right place to start depends on the contributor's depth.

30-min scoping call

THIS WEEK

**Mutual NDA · scope memo ·
access to source tree**

DELIVERABLES

**Sixty-day bounded
engagement on chosen entry
point**

FIRST WORK

mcronin@somnustech.ai · 920.284.9099 · sleep.somnustech.ai

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Trademarks. HYPNARA™, MORPHEX™ AI, Somnus Index™, and Somnus-trained™ are trademarks of Somnus Technologies, Inc. All other trademarks referenced are the property of their respective owners.

Patent-pending status. The Somnus IP portfolio comprises approximately fifteen applications and three hundred claims, in various stages of filing and prosecution as of April 2026. References in this briefing to "patent filed" describe applications anchored at the USPTO; references to "filing planned" describe applications drafted and queued for filing through Q2 and Q3 2026. Specific application numbers, filing dates, and prosecution status are available under separate cover from Somnus patent counsel.

Regulatory status. HYPNARA™ and MORPHEX™ AI are in development. Patent-pending. Not yet FDA cleared and not available for commercial sale in the United States. The Somnus Index™ is a wellness metric positioned under the FDA General Wellness Policy and is not a medical device, not for clinical diagnosis or treatment decisions. References to indications, regulatory pathways, and timelines reflect the company's current plans and are subject to FDA review, classification, and clearance.

Inventorship and assignment. Any inventive technical contribution arising from the engagement evaluation described in this briefing is intended to be assigned to Somnus Technologies, Inc., with the contributor named as a co-inventor on the relevant filing(s) under standard inventor assignment terms. The recipient is asked to confirm in advance any prior employment or affiliation agreements that could affect ownership of such contributions.

Forward-looking statements. This briefing contains forward-looking statements regarding regulatory milestones, technical roadmaps, and engagement timelines. Such statements involve known and unknown risks, uncertainties, and assumptions. Actual results may differ materially. These statements are based on management's current expectations and are not guarantees of future performance.

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Contact. Matthew Cronin, Founder & CEO · mcronin@somnustech.ai · 920.284.9099