



Concho.ai



From Legacy Code to Agentic Enterprise Applications in Weeks.

Introduction

Legacy Modernization Challenge

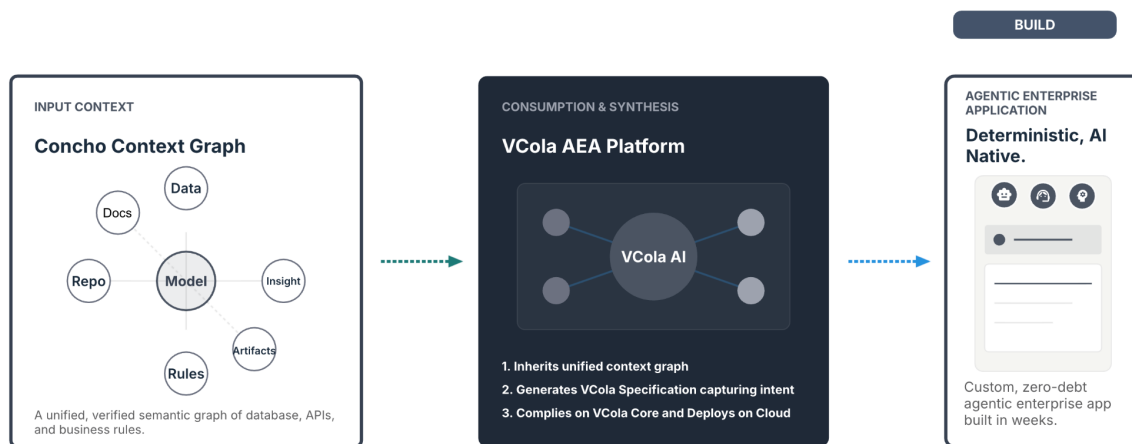
Legacy application modernization is hindered by the loss of institutional knowledge, exorbitant costs, extended timelines, and the massive risks inherent in modifying mission-critical, core systems. Organizations that take on the challenge are faced with unknown dependencies, undocumented code and business rules, and a shrinking pool of programmers and analysts who understand the legacy programming language.

Recent advances in AI provide some hope, but generic AI tools struggle to interpret complex, opaque legacy applications and most AI code generation tools by themselves are not suited to building reliable agentic enterprise software at speed.

Concho & VCola

To address these challenges, we have brought together Concho's digital architect discovery tool and VCola's Agentic Enterprise Applications platform, in a verified, end-to-end modernization framework. The integrated solution rapidly delivers validated, AI-native enterprise applications, significantly reducing the traditional timeline and costs associated with software modernization.

Concho digital architect analyzes legacy codebases to extract and model business rules, workflows, and dependencies into a validated, human-readable "cognitive model." VCola consumes the validated model to generate a precise specification for your new application, and rapidly builds a secure, deterministic, and enterprise-grade replacement.



Discover, Build, Evolve with Concho and VCola.

Discover, Build, Evolve

This approach transforms the modernization journey from a high-risk challenge into a governed, repeatable process, allowing organizations to "see it right" by validating legacy logic, and "rebuild it right" by generating production-ready software that is fully traceable to the original business intent. All achieved in a fraction of the time, and with greater transparency than ever before.

This whitepaper details a structured three-stage framework, Discover, Build, and Evolve, powered by Concho and VCola that slashes the duration, expense, and operational exposure of software modernization initiatives.

Discover

The starting point for any successful legacy modernization initiative is gaining a comprehensive understanding of the business logic embedded within decades-old codebases. Historically, this initial diagnostic stage, encompassing deep system analysis, dependency mapping, and architectural planning, was a massive undertaking. With traditional methods, Discovery alone could account for 15% to 20% of the aggregate project timeline, or up to three months before development would begin. Worse still, it often yielded only partial, fragmented insights.

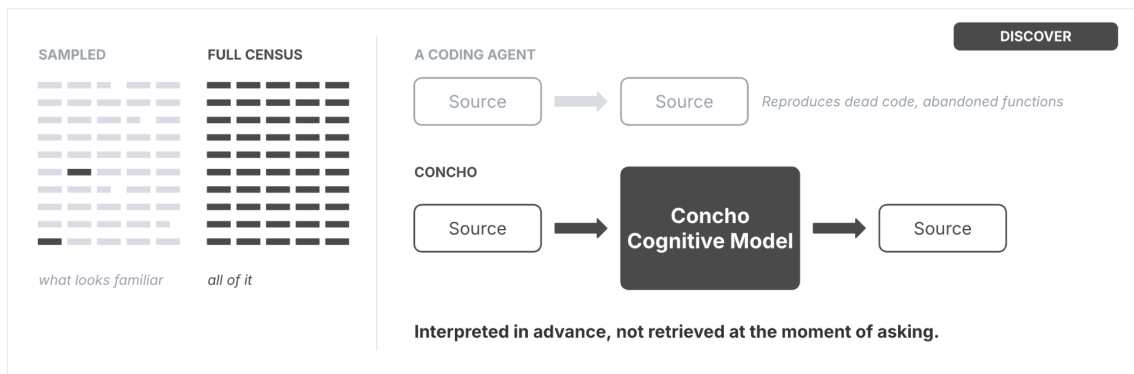
While recent advancements in generalized artificial intelligence offer hope for automating the discovery of business rules and source code analysis, foundational models present a critical technical bottleneck: limited context windows. When a general-purpose AI tool is pointed at a codebase spanning millions of lines, it processes only what fits within its immediate window and infers the rest.

This structural limitation produces highly incomplete or flawed representations of APIs, integration points, tech stacks, data flow diagrams, and underlying architecture. Entire code branches go unexamined, and dead or redundant code risks being carried forward into the new architecture under the guise of an active business rule.

Concho's digital architect automatically generates an accurate and complete context map of any legacy system in hours to eliminate these early project bottlenecks. Concho is language neutral and already works with more than fifteen programming languages, including COBOL and even obscure languages such as IBM Assembler and PICBASIC.

Full Read

Concho analyzes the legacy application code, together with any surviving, related information. Every file, every line. Concho reads the entire codebase rather than sampling it, and reports what it found, what it could not resolve, and how confident it is in each finding.



Read the codebase in full, then transform it.

From its analysis Concho produces a cognitive model that is a validated context graph of all related entities, dependencies, workflows, and business logic encompassing everything needed to build a new system. It includes aggregate roots, bounded contexts, business rules, workflows, and integration boundaries, all queryable via an MCP server for scoping, API design, risk assessment, and modernization planning.

Structure extracted & rules rated

Program structure, data definitions, call graphs, copybook references, and job sequences are extracted deterministically, with no inference. Business rules and workflows are then synthesized on top of the verified base. Keeping the two apart is what makes the resulting model defensible.

Each finding is tied directly to its provenance, including file location and line number, and assigned a confidence rating. Verified facts are clearly distinguished from inferred rules,

ensuring reviewers understand which elements reflect direct code analysis and which were, by necessity, interpretation. Confidence ratings follow a straightforward scale: higher scores signify stronger structural backing in the source code.

Because deeper inference demands greater computational resources, analysis depth is calibrated to the specific level of certainty required for a given decision. Typically, findings with scores of 0.85 or higher are considered actionable, whereas lower-confidence items undergo subject matter expert review before being included in the specification.

Complete Documentation

A further benefit of Concho's deep analysis is regeneration of misplaced or incomplete documentation. For many legacy systems the original requirements have been lost or are out of date following decades of ad hoc code changes. The same goes for application documents, including reference manuals, business rules, domain maps, and architecture diagrams.

Concho produces a complete and accurate set of documentation, architecture diagrams, and user guides for the legacy application.

Stakeholder Sign-off

Stakeholders can review and approve the model prior to the **Build** phase, before any code is authored. Reviewers evaluate the catalogue and provide additional input and feedback using natural language. Every feedback cycle automatically re-executes the relevant analysis to generate an updated iteration with increased accuracy. Because no manual edits occur, complete traceability from each business rule to its originating line of source code is preserved, keeping the audit trail fully intact.

Build

The approved Concho model forms the basis for a complete application modernization plan that is consumed by VCola to build the new application. Following Discovery, the typical Build phase represents the most resource-intensive segment of the modernization lifecycle. Depending on the complexity and technical debt of the underlying architecture, execution traditionally demands the lion's share of the remaining timeline, often requiring three to 14 months to achieve production readiness.

Generic AI and so-called vibe coding offer the potential to improve development speed, but they are more suited to lightweight applications, and cannot easily meet enterprise applications requirements. They can read code but cannot infer intent, and nobody can audit an inference that was never written down. Concho writes everything down, ties every finding

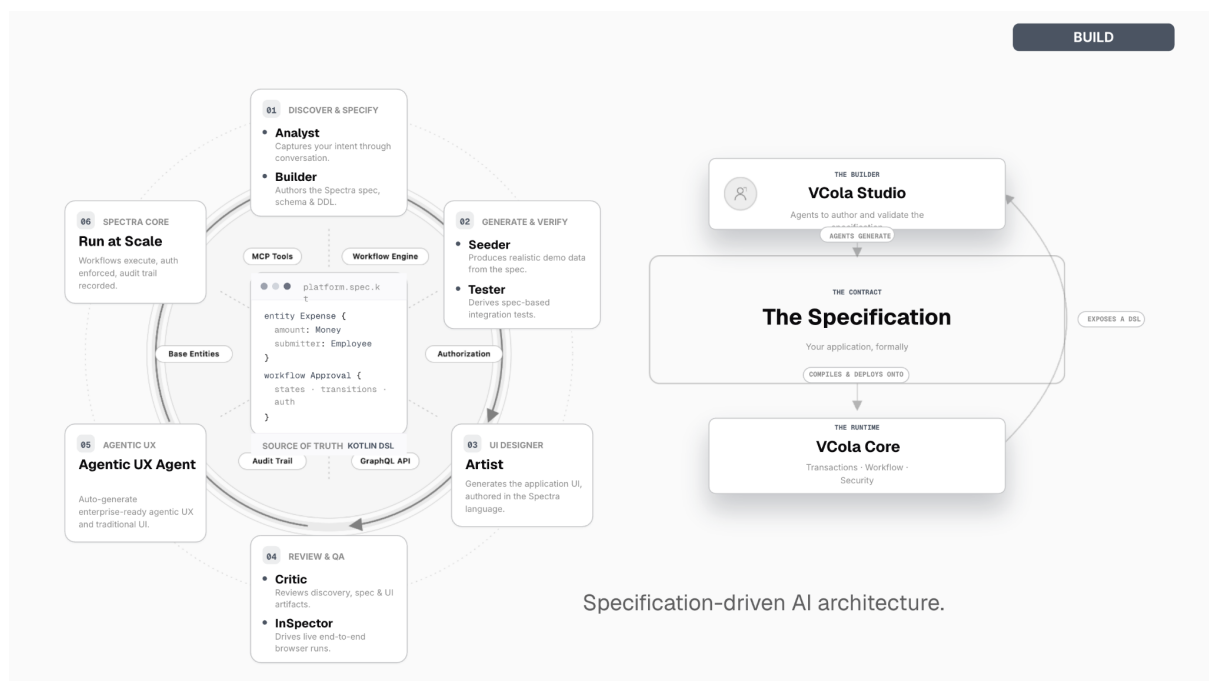
back to the line of source it came from, and puts it in front of a person to confirm before any new code is generated.

AI-assisted Integrated Development Environments can help by introducing guardrails to ensure greater compliance with enterprise software requirements. However, you end up in a software development life cycle that still takes significant time to deliver a completed application and may not automatically allow for AI-enabled solutions.

AI Innovation & Speed, with Enterprise Rigor

Together, VCola and Concho streamline the process from Discovery to Build and Evolve, which means you don't have to choose between speed and enterprise rigor. The VCola Agentic Enterprise Applications platform marries the rapid innovation of AI-driven development with the strict architectural exactitude needed to deploy and evolve real, functioning business applications. VCola delivers uncompromising transactional integrity, security, and performance to deliver fully custom enterprise applications in a fraction of the time required by traditional SDLCs.

AI-native enterprise platform engineering.



Generate, deploy, upgrade, repeat.

VCola is not a vibe coding tool. It is an AI-native platform engineering system that combines domain-aware code generation with the architectural rigor enterprise software demands. The platform includes agents that manage the build process, from specification through to living application. VCola includes four key components, engineered to work as a single system.

The components are:

- **VCola Studio:** A suite of agents that discover intent, author the VCola Specification, and build applications end-to-end.
- **VCola Specification:** A rich Domain Specific Language (DSL) that captures enterprise intent as a formal, precise contract, acting as the single source of truth for the application.
- **VCola Core:** An opinionated runtime with security, workflow, transactional integrity and audit built in, so your application is correct by construction.
- **VCola Cloud:** A rich deployment fabric spanning sandbox and production, with secure access to all your deployed applications.

Verified Model to Specification Validation

Every modernization project eventually faces the same questions, often from the risk or audit department, and usually later than it should: “how do we know the new system does what the old one did?”, and “how do we know that new functionality, including autonomous agents, won't break any rules?”, or “how is the new system better than the old system in some meaningful way?”

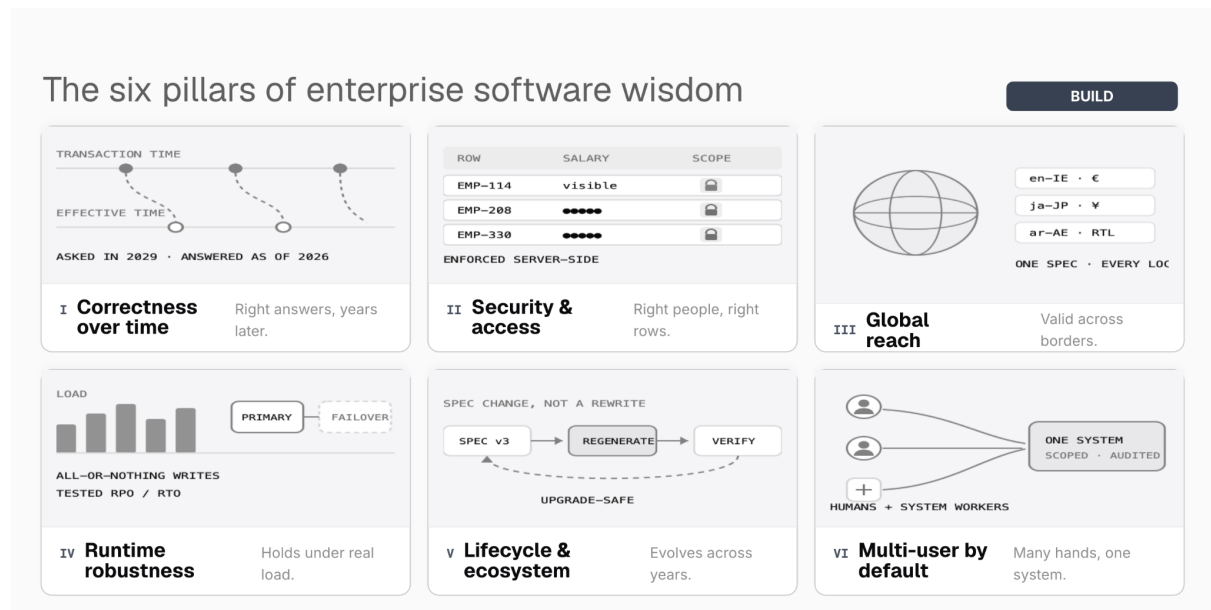
None of these questions can be easily answered in the case of direct source-to-source translation. When a tool reads old code and writes new code, the only evidence it can offer is the two bodies of code. Nobody can read a million lines of each and compare them.

Because Concho generates a cognitive model from existing source code it provides a readable validation checkpoint at the start of the process. VCola Studio consumes the Concho modernization plan via an MCP Server, and renders the business rules, entities, architecture and workflows as a rich specification, rather than raw code.

The VCola Specification becomes the new formal model for the application, documenting every entity, every workflow, every business rule, every security constraint, and every compliance requirement. This specification is not a prose description. It is a machine-readable specification, captured in DSL, rather than brittle, hand-generated code.

Going forward, it is the primary source of truth for code generation, validation, and verification. The VCola Specification includes the full spectrum of application intent: all entities, workflows, business rules, and security constraints. It is a formal contract that executes on the VCola Core, guaranteeing every component it produces is:

- **Deterministic:** The same Specification produces the same correct application, every time.
- **Enterprise Class:** With structurally enforced transactional integrity, role-based access, effective dating, audit trails, and multi-user support.
- **Agentic by Design:** Encompassing an AI-native, purpose-built agentic interface that understands the specific business needs it serves.



Building applications that satisfy core architectural requirements of enterprise software.

Importantly in the context of robust software modernization, AI agents are not bolted on to the application. They are generated alongside the application, sharing the same domain model, the same security rules and the same transactional semantics. As such, Concho and VCola can do more than simply modernize the existing code base to a more up-to-date programming language, with better documentation.

The process also offers the opportunity to add in new functionality and fundamentally redefine how business software is deployed, and utilized, completely transforming how business is carried out as a consequence. It provides the foundation for next-generation architectures that move beyond traditional software limitations, delivering agentic enterprise applications that act as dynamic partners, enabling organizations to respond to change intuitively and rapidly.

Verifying the build

The rules extracted during Discover arrive as testable statements, so they become the acceptance criteria the new application is measured against. Equivalence is demonstrated rule by rule, against a catalogue a human approved, rather than asserted across two codebases nobody can read.

Evolve

Applications built with Concho and VCola possess a unique capacity to evolve, scale, and upgrade seamlessly because the VCola Specification links core business logic to the underlying technical infrastructure. By defining application components and workflows through a universal specification, organizations can continuously update and expand their digital solutions without breaking existing systems or accumulating crippling technical debt.

The living specification

Even after the application is deployed, VCola enables continuous, agile innovation free from the architectural constraints that traditionally stall enterprise software lifecycles. The specification-driven architecture means developers and subject matter experts can focus on driving business value using VCola Studio, while the structural weight of the application is handled by VCola Core.

As an opinionated runtime environment, VCola Core manages the complex heavy lifting required to sustain a robust, production-ready enterprise application. It functions as an automated operational engine, shielding development teams from the intricate mechanics of infrastructure optimization, traffic scaling, and continuous deployment pipelines.

VCola institutionalizes rigor at scale by automatically enforcing critical operational standards directly into the runtime environment. Bulletproof security protocols, strict compliance standards, enterprise-grade deployment parameters, and flawless data integrity are embedded by default. Because these complex, non-functional requirements are handled uniformly by the runtime rather than coded manually by developers, the resulting applications are inherently secure, effortlessly compliant, and structurally equipped to scale alongside enterprise demands.

Continuous Modernization

The synergy is clear. From compressing a five-month integration for a healthcare system into five weeks, to building a fully specced payroll application in under a month, Concho and VCola are slashing timelines and eliminating the risks traditionally associated with legacy migration, and enterprise application development.

The joint solution delivers Agentic Enterprise Applications that bridge the gap between legacy complexity and AI-native flexibility, offering enterprises a path to truly future-proof systems that evolve as requirements change. Whether adapting to new regulations or shifting market conditions, organizations will be able to modify and update their systems as needed, rather than facing the upheaval of another full-scale modernization in 10 years' time.

With a living specification, which unlike traditional documentation, does not become obsolete immediately after go-live, there is always a record linking business intent and functionality.

This means that subject matter experts can take responsibility for keeping the systems up to date as requirements evolve, thus avoiding the need for workarounds and point solutions that ultimately reduce the value of the core system. As such, the application always remains aligned with business objectives, ending the era of technical debt and replacing it with deterministic, secure, and evolving software.

Key Benefits

- **Eliminate Risk:** Transform hidden legacy logic into precise, specification-driven systems that organizations can trust.
- **Accelerate Modernization:** Slash time-to-market and project costs by reducing modernization timelines from years to weeks.
- **Future-Proof the Enterprise:** Deploy agentic applications built to adapt and grow alongside shifting organizational needs.

About Concho AI

Concho AI unlocks the potential of AI for enterprises that need it most, organizations running mission-critical legacy systems. Concho provides the systems-level intelligence that makes modernization with AI coding tools practical. For more information, visit: <https://www.concho.ai/>.

About VCola

VCola bridges the gap between AI innovation and enterprise rigor, providing an Agentic Enterprise Applications platform for building secure, scalable, custom business applications. Founded by enterprise software veterans with deep experience building core platforms like Workday, VCola ensures that modernization results in deterministic, production-grade software. We deliver uncompromising transactional integrity, security, and performance, all at AI-native speeds. For more information, visit: <https://www.vcola.ai/>.

Ready to Transform Your Legacy Estate?

Modernizing your systems doesn't have to be a high-stakes gamble. Whether you are ready to start your modernization journey or want to learn more about how Concho and VCola can compress your project timelines, we are here to help.

Schedule a [Discovery Call](#) to discuss your specific modernization challenges.

Contact & Resources

To learn more about Agentic Enterprise Applications and see our latest modernization case studies, visit our websites:

- [VCola.ai](https://www.vcola.ai)
- [Concho.ai](https://www.concho.ai)