Thoughtworks AI/Works - Knowledge Base

Document Purpose

This document serves as the comprehensive knowledge base for the Thoughtworks Agentic Delivery Platform (AI/Works). It is designed to be used by AI assistants, chatbots and sales/technical teams to answer questions about the platform's capabilities, methodology, competitive positioning and value proposition.

SECTION 1: EXECUTIVE OVERVIEW

What is Thoughtworks AI/Works?

Thoughtworks' agentic development platform, **AI/Works,** is an enterprise-grade platform that transforms how organizations build, modernize and evolve software systems. Unlike other agentic platforms that assume greenfield development, AI/Works is purpose-built for the enterprise reality where legacy systems, microservices and AI agents must coexist and thrive together.

Core Value Proposition

"Where Legacy Meets Agentic Intelligence"

Thoughtworks AI/Works transforms trapped technical debt into modern, AI-ready systems while simultaneously building your agentic future—without the rip-and-replace risk.

The Thoughtworks Difference

While others are building agent platforms, Thoughtworks is solving the real problem: transforming how enterprises actually build, modernize and evolve software systems where agents, microservices and legacy components must coexist and thrive together.

Heritage of Innovation

For over 30 years, Thoughtworks hasn't just adopted industry trends—we've **created** them:

- **Invented Agile methodology** – Revolutionizing how software gets built
- **Pioneered microservices architecture** – Defining modern distributed systems
- **Established CI/CD practices** – Setting the standard for deployment automation
- **Created Data Mesh** – Democratizing data architecture at scale
- **Integrated Product Thinking** – Ensuring technology serves business outcomes

Now we're applying that same innovation DNA to agentic AI.

The Enterprise Reality

The Inconvenient Truth

Most agentic platforms assume you're building on a clean slate. **You're not.**

Your enterprise runs on:

- ✓ Mainframes processing billions of transactions
- ✓ Microservices architectures serving millions of users
- ✓ Legacy monoliths containing decades of business logic
- ✓ Data products powering critical analytics
- ✓ Custom applications with tribal knowledge

Thoughtworks AI/Works is the only platform purpose-built for this reality.

We don't just deploy agents—we **orchestrate the evolution** of your entire software ecosystem, where agentic AI, modern architecture and legacy systems work seamlessly together.

SECTION 1B: Framing the AI/Works

Case for Change

Thoughtworks believes that we are entering a profoundly transformative time, where human ingenuity paired with unprecedented capabilities of AI enables us to achieve previously unattainable goals of creating dynamic, composable, technology-centric enterprises for today's highly dynamic marketplace. The new tools and techniques will enable both legacy technology modernization and new product and platform development with fundamentally different timelines and economics.

Creating a dynamic, composable enterprise includes deconstructing and decommissioning a vast landscape of legacy systems, many of which reflect decades of enhancements and complexity. Historically, modernizing these legacy systems has been prohibitive, with high costs, high risks and long timelines thwarting many efforts. We have a strategy to remove many of these constraints.

A Vision for Future Technology Development

Thoughtworks believes we can develop higher-quality technology on radically faster timelines to produce highly performing systems across multiple target operating environments. Future systems will include self-healing runtime architectures, reduced cyberattack surfaces and continuously updated functional and technical requirements. These systems will receive automated daily, weekly, or regular updates to the entire code base, leveraging deep technical expertise with LLM-based code generation and testing agents. The future mix of spend between build, test, maintain and operations efforts will change dramatically as custom code becomes a service.

An Enabling Agentic Technology Development & Operations Platform

Thoughtworks is building on our pioneering heritage to lead the way to the next generation of developing, maintaining and operating enterprise-grade technology. It starts with a vision centered on composable asset libraries with code, data products and agentic agents. We are creating the AI/Works platform, including the foundational techniques, intellectual property, reusable component libraries and new ways of working. Our approach comprehensively reimagines software engineering for the world of AI, creating a disruptive step-change in productivity, performance and cost for technology development.

SECTION 2: PLATFORM ARCHITECTURE

The Three Environments

The Agentic Delivery Platform operates across three primary environments, unified by a sophisticated Control Plane and powered by Large Language Models (LLMs) and Small Language Models (SLMs).

1. Developer Portal

The Developer Portal serves as the central access point for all platform capabilities. It provides developers, architects and operators with a unified interface to:

- Interact with the platform's agentic capabilities
- Access documentation and context libraries
- Configure integrations with third-party plugins
- Manage the entire delivery lifecycle
- Monitor platform operations

The portal acts as the command center for teams working with the platform, providing visibility and control across all operations.

2. Integrated Development Environment (IDE)

The IDE environment encompasses the entire journey from requirements capture through code generation. This is where the platform's AI agents work collaboratively to transform business needs into production-ready code.

Key capabilities include:

- Requirements capture and enrichment
- Specification development
- Automated code generation
- Architecture decision recording
- Integration with context libraries and reusable components

3. Operations Environment (AIOps)

The Operations Environment handles everything after code deployment:

- Monitoring and observability
- Proactive maintenance and codebase regeneration
- Trouble management and incident response
- Agentic security management
- Performance optimization

This ensures applications remain healthy, secure and performant throughout their operational lifecycle.

SECTION 3: KEY PLATFORM COMPONENTS

Component 1: Reverse Engineering - Understanding Legacy Systems

Purpose

Making the invisible visible by extracting knowledge from existing systems.

For Legacy Modernization

CodeConcise (Proprietary Technology)

- Extracts requirements from existing applications using AI-powered code analysis
- Uses Abstract Syntax Tree (AST)-based structures to understand code at a deep structural level
- Implements graph-based discoverability to map relationships and dependencies
- Employs LLM-based interpretability to understand intent and business logic

Mechanical Orchard Partnership

- Specialized mainframe requirement extraction
- Handles COBOL, JCL and legacy systems
- Preserves business logic embedded in decades-old code

Key Capabilities:

- **Code to Spec Translation**: Converts existing application code into specification documents
- **Legacy Application Analysis**: Examines multiple legacy applications to extract patterns, business rules and architectural decisions
- **Knowledge Extraction**: Captures valuable institutional knowledge that might otherwise be lost during modernization

Outcome: Crystal-clear understanding of what your systems actually do (not what documentation claims)

For Net New Development

Product Thinking Framework

- Captures requirements through user research
- Jobs-to-be-done analysis
- Outcome mapping

Rapid UX/Design

- High-fidelity prototypes
- Validation with real users

Outcome: De-risked concepts with proven desirability before writing code

Component 2: Requirements Capture & Enrichment

The Requirements Capture & Enrichment layer transforms business needs into actionable specifications through multiple AI agents working in concert.

Requirements Normalization and Categorization

AI agents process raw requirements from various sources—business stakeholders, technical teams, compliance mandates—and:

- Normalize them into consistent formats
- Categorize by type (functional, non-functional, security, compliance)
- Organize by priority and domain
- Create order from the chaos of typical requirements gathering

AI-Enabled Industry and Applications Capability Research

Rather than starting from scratch, the platform's agents:

- Research similar applications and industry best practices
- Scan the Capabilities and Industry Solutions Library for reusable patterns
- Identify proven solutions
- Dramatically accelerate the requirements process

UX Design Choices & Refinement

The platform considers how users will interact with applications:

- AI agents propose user experience design options
- Based on leading design systems in the Context Library
- Informed by user research and accessibility requirements
- Refined through feedback and usability principles

Rapid Prototyping & Validation

One of the platform's most powerful features:

- AI agents generate working prototypes within hours or days
- Allows for rapid iteration and validation
- Validates requirements before significant development investment
- Reduces risk of building the wrong thing

Component 3: Context Library - The Knowledge Repository

The Context Library is a comprehensive, curated collection of critical reference materials that AI agents draw upon throughout the development process.

Contents of the Context Library

Context Asset	What It Provides
Leading UX/UI Design Systems	Battle-tested patterns (Material Design, Carbon, custom frameworks)
Industry Specifications	Healthcare (FHIR, HL7), Finance (ISO20022, FIX), Retail (EDI, GS1)
Systems of Record Specs	SAP, Salesforce, ServiceNow, Workday integration patterns
Regulatory Requirements	GDPR, HIPAA, SOX, PCI-DSS, industry compliance frameworks
Thoughtworks Architecture & Coding Practices	30+ years of software engineering excellence distilled

Security Threats & Conformance	OWASP Top 10, Zero Trust, threat modeling templates
Data Model Specifications	Canonical models, event schemas, API contracts
Application Construction Recipes	Proven patterns for auth, observability and deployment

Key Functions

Regulatory & Compliance Specifications

- Contains up-to-date compliance frameworks
- Agents automatically incorporate into specifications
- Ensures compliance is baked in from the beginning

Systems of Record Specifications

- Documents APIs, data models and integration patterns for enterprise systems
- Ensures new applications integrate seamlessly with existing systems
- Covers ERP, CRM, HRMS and other critical systems

Security Threats and Conformance Measures

- Maintains updated catalog of security threats and vulnerabilities
- Includes mitigation strategies (OWASP Top 10, etc.)
- Agents incorporate into designs automatically

Thoughtworks Architecture & Coding Practices

- Captures organizational architectural decisions
- Documents coding standards and best practices
- Ensures all generated code follows company standards

The Context Library is continuously updated and serves as the institutional memory of the organization, preventing teams from reinventing solutions and ensuring consistency across projects.

Component 4: Capabilities and Industry Solutions Library

This library represents the organization's accumulated intellectual property—previously developed and validated solutions ready for reuse.

Capabilities

Individual capabilities represent discrete functional building blocks:

- User authentication
- Payment processing
- Document generation
- Data visualization
- Each capability has been developed, tested and proven in production

Solutions

Complete solutions represent end-to-end implementations:

- Customer onboarding flows
- Loan application processes
- Inventory management systems
- Solutions compose multiple capabilities into cohesive applications

Pre-Built Assets Include:

Microservices

- Payment processing
- Identity services
- Notification systems
- Pre-built, production-ready components from real client engagements

Data Products

- Customer 360 views
- Risk analytics
- Recommendation engines
- Curated, quality-assured datasets

Agentic Components

- Customer service agents
- Code review agents
- Data quality agents
- Both first-party (developed internally) and third-party agents

Industry-Specific Solutions

- Healthcare claims processing
- Retail inventory optimization
- Financial services compliance
- Production-proven components from real implementations

The Thoughtworks Advantage: Our accelerators aren't just code templates—they're production-proven components from real client engagements.

Component 5: Components Library - Technical Building Blocks

Microservices (Svc 1, Svc 2, Svc 3, etc.)

A collection of proven microservices implementing specific technical capabilities:

- API gateways
- Authentication services
- Notification services
- Search engines
- Caching layers
- Each service is production-ready, tested and documented

Data Models and Data Products (DP 1, DP 2, DP 3, etc.)

- Standardized data models for data consistency
- Data products are curated, quality-assured datasets
- Ready for consumption by applications or analytics

Agents (1st & 3rd Party)

- First-party agents (developed internally)
- Third-party agents (from vendors or open-source projects)
- Includes chatbots, document processing agents, fraud detection agents, data analysis agents

This library grows over time as the platform generates new components, creating a compound effect where each new project becomes easier and faster than the last.

Component 6: Dynamic Spec Development - Creating the Super Spec

The Dynamic Spec Development component is the heart of the platform. This is where all inputs converge to create the **"Super Spec"**—a comprehensive, AI-generated specification document that becomes the single source of truth for the entire delivery process.

What is the Super Spec?

The Super Spec is a living, machine-readable artifact that includes:

Architecture Decision Records (ADRs)

- Documents key architectural decisions
- Captures not just what decisions were made but why
- Creates an audit trail for future teams

Functional Business Requirements (with Conflict Resolution)

- Aggregates requirements from all sources
- AI agents actively identify and resolve conflicts
- Proposes resolutions based on priority, stakeholder input and technical constraints

Technical Business Requirements

- Translates business requirements into technical specifications
- Determines technical approach needed to meet business objectives

User Experience Design

- Finalized UX designs
- Complete with wireframes, user flows and interaction patterns

Transitionary Design Specs

- For modernization projects
- Specifications for migrating from legacy systems to new architectures
- Includes data migration strategies and phased rollout plans

Data Architecture & Schemas

- Complete data models
- Database schemas
- Data flow diagrams

Integration Layer Definitions

- Specifications for system integrations
- API contracts
- Messaging patterns
- Data synchronization strategies

Application Construction Recipe

- Detailed recipe for codebase construction
- Technology choices
- Frameworks and architectural patterns
- Component dependencies

Key Features of the Super Spec

What Makes It Different:

- Not just code generation—**architectural synthesis**
- Ensures consistency across human-written, AI-generated and legacy code
- Maintains technical debt at near-zero levels
- Produces code that developers actually want to maintain
- Machine-readable, allowing downstream agents to consume it directly
- Living artifact that evolves as requirements change

Component 7: Spec to Code

Once the Super Spec is complete, the platform's code generation agents transform it into production-ready applications.

Front and Backend Story Generation

AI agents break down the Super Spec into individual development stories:

- Comprehensive stories similar to Agile user stories
- Includes acceptance criteria
- Technical implementation notes
- Links to relevant design and architectural decisions
- Coverage for both frontend and backend development

Application Components Generation

Using stories as input, code generation agents create:

Frontend Components

- React, Angular, Vue, etc.
- Proper styling and accessibility
- Following design system standards

Backend Services

- REST APIs, GraphQL, microservices
- Proper error handling and logging
- Production-grade code quality

Infrastructure & DevOps

- Database schemas and migration scripts
- Infrastructure as Code (Terraform, CloudFormation)
- CI/CD pipeline configurations

Documentation

- API specifications
- Technical documentation
- Runbooks

Code Quality Features:

- Follows organizational coding standards from Context Library
- Incorporates security best practices automatically
- Maintains consistency and quality

Testing & Verification

The platform generates tests using the same Super Spec used to generate code, ensuring:

- **Unit tests** for individual components
- **Integration tests** for component interactions
- **End-to-end tests** for complete user workflows
- **Security tests** for vulnerability scanning
- **Performance tests** for load and stress testing

This test-first approach ensures high code quality from the start.

Continuous Deployment

Once code passes all verification steps:

- Automatic deployment to appropriate environments
- Orchestrated through the Control Plane
- Manages deployment pipeline
- Provisions infrastructure
- Implements rollout strategies

Component 8: Runtime Operations

After deployment, the Operations Environment continuously monitors and maintains applications through AI agents.

Monitoring & Observability

AI agents continuously monitor across multiple dimensions:

- Performance metrics (response times, throughput, resource utilization)
- Business metrics (user engagement, conversion rates, transaction volumes)
- Error rates and failure patterns
- User experience metrics
- Infrastructure health

The platform doesn't just collect metrics—AI agents analyze them to identify patterns, anomalies and potential issues before they impact users.

Proactive Maintenance and Codebase Regeneration

One of the platform's most innovative features—proactive maintenance through code regeneration:

How It Works:

- Rather than patching code repeatedly, the platform regenerates from the Super Spec
- Security patches incorporated by updating libraries and regenerating
- Performance optimizations applied by updating architectural patterns
- New features added by updating the Super Spec and regenerating affected components

Benefits:

- Keeps codebase clean and maintainable
- Prevents technical debt accumulation
- Maintains architectural integrity over time

Trouble Management

When issues occur, AI agents actively diagnose and resolve problems:

- Root cause analysis using logs, traces and metrics
- Automatic remediation for known issues (restarting services, clearing caches, scaling resources)
- Escalation to human operators with comprehensive diagnostic information
- Automated incident documentation and post-mortem generation

Agentic Security Management

Security is continuous, not a one-time activity:

- Monitor for new vulnerabilities in dependencies and frameworks
- Scan running applications for security threats
- Update threat models based on new attack patterns
- Trigger codebase regeneration to patch vulnerabilities
- Ensure compliance with security policies and regulations
- Conduct automated penetration testing

Component 9: Control Plane - The Orchestration Layer

The Control Plane runs beneath all components, managing the platform's AI infrastructure and ensuring quality, security and cost-effectiveness.

Control Plane Capabilities

Governance

- Role-based access control
- Approval workflows
- Audit trails for compliance

Quality Gates

- Automated testing integration
- Security scanning
- Performance benchmarks
- Code quality metrics

Observability

- Real-time monitoring of agents, microservices and legacy integrations
- Unified telemetry across the entire platform
- Comprehensive visibility from AI models to applications to business metrics

Compliance

- Automated policy enforcement
- Data residency management
- PII handling
- Regulatory requirements tracking

Cost Management

- Usage tracking across AI models and compute resources
- Budget alerts and notifications
- Optimization recommendations
- Spend analytics

Agent Orchestration

- Multi-agent workflows
- Fallback mechanisms
- Escalation procedures
- Human-in-the-loop integration

AI Usage Management

AI Usage Analytics

- Tracks AI agent usage across the platform
- Monitors which models are being invoked
- Tracks purposes and results
- Informs optimization and improvement opportunities

Input & Output Filters

- Ensures appropriate data flows to/from AI models
- Prevents sensitive information exposure
- Screens model outputs for quality and safety

Guardrails & Evals

- Prevents inappropriate AI agent actions
- Screens problematic outputs

- Continuous evaluation of model performance
- Ensures quality remains high

Anomaly Detection

- Monitors AI model behavior for problems
- Detects unusual input patterns
- Identifies unexpected outputs
- Flags performance degradation
- Identifies potential security issues

Data Integrity & Sovereignty

- Ensures appropriate data handling
- Implements proper encryption and access controls
- Ensures compliance with data sovereignty requirements
- Critical for AI model usage

Secure AI

- Protects models from adversarial attacks
- Prevents prompt injection
- Secures model weights
- Ensures safe AI operations

Component 10: LLMs & SLMs - The AI Engine

At the foundation sits the AI infrastructure—a combination of Large Language Models and Small Language Models.

Heterogeneous Model Approach

The platform orchestrates multiple models for different purposes:

- **Large LLMs** for complex reasoning, requirements analysis and architecture decisions
- **Specialized LLMs** for code generation in different programming languages
- **Smaller models** for routine tasks like code formatting or simple transformations
- **Domain-specific models** trained on industry knowledge

This approach optimizes both performance and cost by using the right model for each task.

SECTION 5: COMPLETE PLATFORM WORKFLOW

From Idea to Production: The Complete Journey

Phase 1: Discovery and Understanding

1. **Project Initiation**
    - Business stakeholders describe needs through the Developer Portal
    - Initial requirements captured
2. **Legacy Analysis** (if applicable)
    - Reverse Engineering component analyzes existing legacy systems
    - CodeConcise extracts requirements from legacy code
    - Mechanical Orchard handles mainframe systems
3. **Requirements Enrichment**
    - Requirements Capture agents normalize and enrich requirements
    - Research similar solutions in the Capabilities Library
    - Identify reusable components
4. **Design Validation**
    - UX Design agents propose interface designs
    - Based on leading design systems
    - Rapid prototyping agents create working demos
    - Stakeholder validation and feedback

Phase 2: Specification Development

1. **Super Spec Creation**
    - Dynamic Spec Development agents begin creating a comprehensive specification
    - Pull context from Context Library (compliance, integration specs, security standards)
    - Search Capabilities and Solutions Libraries for reusable components
2. **Conflict Resolution**

   - Agents identify and resolve contradictions in requirements
   - Prioritize based on business objectives and technical constraints
3. **Architecture Documentation**
   - Architecture agents document key decisions and rationale
   - Create Architecture Decision Records (ADRs)
4. **Review and Approval**
   - Complete Super Spec reviewed by stakeholders
   - Technical validation
   - Approval to proceed to code generation

Phase 3: Code Generation and Testing

1. **Story Generation**
   - Codebase Generation agents break down Super Spec into detailed development stories
   - Stories include acceptance criteria and technical implementation notes
2. **Component Creation**
   - Code generation agents create all application components
   - Frontend components (UI, interactions, styling)
   - Backend services (APIs, business logic, data access)
   - Infrastructure code (deployment, scaling, monitoring)
   - CI/CD pipeline configurations
3. **Test Generation**
   - Test generation agents create comprehensive test suites
   - Uses same Super Spec as source of truth
   - Unit, integration, end-to-end, security and performance tests
4. **Validation**
   - All generated code goes through automated testing
   - Security scanning
   - Performance benchmarking
   - Quality gates validation

Phase 4: Deployment and Operations

1. **Continuous Deployment**

    - Validated code automatically deployed through Continuous Deployment pipeline
    - Infrastructure provisioned
    - Rollout strategies executed
    - Health checks validated
2. **Monitoring Activation**
    - Monitoring agents begin tracking application performance
    - Track usage patterns, errors and health metrics
    - Business metrics monitoring
3. **Security Monitoring**
    - Security agents continuously scan for vulnerabilities
    - Monitor for threats and anomalies
    - Compliance validation
4. **Incident Management**
    - Trouble Management agents diagnose and remediate issues
    - Automatic resolution of known problems
    - Escalation with comprehensive diagnostics when needed

Phase 5: Evolution and Improvement

1. **Continuous Evolution**
    - As new requirements emerge, Super Spec is updated
    - Proactive Maintenance agents regenerate code to incorporate updates
    - Keeps codebase fresh and maintainable
2. **Knowledge Capture**
    - Successful components promoted to Components Library
    - Complete solutions captured in Capabilities and Solutions Library
    - Lessons learned update Context Library
3. **Platform Improvement**
    - Platform becomes progressively smarter with each project
    - Control Plane continuously optimizes operations
    - AI models improve based on usage patterns

The Feedback Loop

Throughout the entire process, the Control Plane monitors and optimizes:

- AI model performance tracked and improved
- Costs monitored and optimized
- Security continuously validated
- Quality metrics measured and enhanced
- Platform operations observed and refined

This creates a virtuous cycle where the platform continuously improves itself, learning from every project and becoming more efficient and effective over time.

SECTION 6: KEY BENEFITS AND DIFFERENTIATORS

Speed and Efficiency

Traditional Development:

- Months to define requirements
- Quarters to build MVP
- Years to see business impact

With AI/Works:

- Days to validate concepts
- Weeks to working prototypes
- Months to production deployment
- Reuse of components compounds benefits over time

Quantified Benefits:

- 40-60% development cost reduction
- 90-day concept-to-production timeline
- 70% of IT budget freed from maintenance

Quality and Consistency

Production-Grade Code:

- AI agents follow organizational standards consistently

- More uniform, higher-quality code than traditional development
- Code that developers want to maintain, not rewrite

Comprehensive Testing:

- Automated test generation from day one
- Tests validate against the same Super Spec used for code generation
- Multiple test types (unit, integration, E2E, security, performance)

Architectural Integrity:

- 30+ years of Thoughtworks engineering excellence baked in
- Best practices automatically applied
- Consistent patterns across all generated code

Maintainability

Zero Technical Debt Approach:

- Ability to regenerate code from specifications
- Rather than patching repeatedly
- Keeps codebases clean and maintainable
- Technical debt significantly reduced

Evolution Without Degradation:

- Super Spec evolves with requirements
- Code regenerated to match updated specifications
- Maintains architectural integrity over time

Knowledge Preservation

Institutional Memory:

- Context Library captures organizational knowledge
- Prevents knowledge loss when team members leave
- Accelerates onboarding of new team members

Reusable Assets:

- Capabilities and Solutions Library grows over time
- Components Library becomes more valuable with each project
- Each project benefits from all previous work

Compliance and Security

Built-In from Day One:

- Compliance requirements baked into Super Spec
- Security best practices automatically applied
- Not bolted on as an afterthought

Continuous Validation:

- AI agents continuously monitor for threats
- Automated vulnerability scanning
- Proactive patching through code regeneration
- Applications remain compliant and secure throughout lifecycle

Cost Optimization

Lower Total Cost of Ownership:

- Dramatic reduction in development time
- Improved quality reduces bug fixes
- Reuse of components reduces redundant work
- Efficient use of AI models (right model for each task)

Freed IT Budget:

- 70% of typical IT budget trapped in maintenance
- AI/Works reduces maintenance burden
- Budget reallocated to innovation and new capabilities

Legacy Modernization

The Thoughtworks Unique Advantage:

- Only platform that addresses both legacy modernization AND new development
- CodeConcise extracts value from decades of legacy investment
- Mechanical Orchard partnership for mainframe modernization
- No rip-and-replace required

SECTION 7: COMPETITIVE POSITIONING

Market Position

Thoughtworks AI/Works is a **credible challenger with defensible differentiation** in the agentic AI software delivery platform market.

Strengths

1. **Unmatched Legacy Modernization Capability**
   - CodeConcise + Mechanical Orchard partnership
   - Only platform that bridges legacy and agentic future
   - Addresses the enterprise reality of hybrid environments
2. **30 Years of Engineering Credibility**
   - Invented Agile, pioneered microservices, created Data Mesh
   - Deep architectural expertise
   - Production-proven practices
3. **Architectural Integrity Focus**
   - Not just code generation—architectural synthesis
   - Produces code developers want to maintain
   - Quality matters, not just speed
4. **Best-of-Breed Philosophy**
   - Integrates with ecosystem partners (Mechanical Orchard)
   - Not locked into single vendor stack
   - Flexible and extensible
5. **Product Thinking + Agentic AI Integration**
   - Ensures building the right thing, not just building fast
   - User research and validation built into methodology
   - Business outcomes drive technical decisions
6. **3-3-3 Methodology with Guaranteed Outcomes**
   - Clear milestones and deliverables
   - Transparent pricing
   - Risk reduction through validation

Weaknesses Being Addressed

1. **Platform Maturity Perception**
   - Accelerating proof points with case studies
   - Production deployments demonstrate capability
   - Building analyst and client advocacy
2. **Scale Concerns**
   - Expanding delivery capacity
   - Partner ecosystem development
   - Platform scalability improvements
3. **Marketing and Brand Awareness**
   - Increased marketing investment
   - Thought leadership and content
   - Industry event presence

Competitive Differentiation

vs. Globant CODA

Their Position: Accelerates new development with subscription model

Our Differentiation:

- "Globant accelerates new development. Thoughtworks accelerates new development AND modernizes your legacy estate. Why choose when you can have both?"
- We address the full enterprise reality, not just greenfield development
- We bring architectural wisdom, not just speed

vs. Ascendion AAVA

Their Position: 4,000+ agents for rapid development

Our Differentiation:

- "Ascendion has 4,000+ agents. Thoughtworks has 30+ years of architectural wisdom. Speed matters, but sustainable speed matters more."
- We focus on code quality and maintainability
- We ensure solutions are architecturally sound, not just fast

vs. Deloitte AI Assist

Their Position: Strategy + scale from Big 4 consultancy

Our Differentiation:

- "Deloitte brings strategy + scale. Thoughtworks brings engineering + speed. You need both, but when the rubber meets the road, code quality matters."
- We have engineer-to-engineer credibility
- We deliver production-grade systems, not just strategies

vs. Grid Dynamics GAIN

Their Position: Observable, governable AI systems

Our Differentiation:

- "Grid Dynamics focuses on observable, governable AI systems. So do we. But we also solve the legacy modernization problem they don't address."
- We offer comprehensive platform including legacy transformation
- We bring 30 years of architectural best practices

vs. Sapient Slingshot

Their Position: 99% code-to-spec accuracy

Our Differentiation:

- "Sapient promises 99% code-to-spec accuracy. We ask: What if your spec is architecturally wrong? Speed to production ≠ speed to value."
- We ensure specifications are architecturally sound
- We validate concepts before building at scale

The White Space We Own

"Legacy Modernization + Agentic Future"

This is the positioning competitors have not claimed. Thoughtworks is the ONLY player who can:

1. Extract value from decades of legacy investment (CodeConcise + Mechanical Orchard)
2. Build modern, agentic systems with production-grade quality (AI/Works)

3. Deliver in 90 days with 3-3-3 methodology
4. Ensure long-term maintainability and evolvability

SECTION 8: VALUE PROPOSITIONS BY AUDIENCE

For CIOs

Message: "Finally, a path to modernize your legacy estate that doesn't require a decade-long, billion-dollar transformation program. 3-3-3 delivers value in 90 days while your mainframes keep running."

Key Benefits:

- No rip-and-replace risk
- Incremental transformation
- Business continuity maintained
- Clear ROI in 90 days
- Lower risk than traditional modernization

For CTOs

Message: "Get production-grade code your teams will want to maintain, not technical debt your teams will want to rewrite. Architecture matters, even—especially—with AI."

Key Benefits:

- Code quality and maintainability
- Architectural integrity
- Technical debt near zero
- Follows best practices automatically
- Teams actually want to work on generated code

For Chief Product Officers

Message: "Product Thinking ensures we build what customers need, not what AI thinks they need. Agentic acceleration on the right problems, not the wrong problems faster."

Key Benefits:

- User research and validation built in
- Rapid prototyping and testing
- Iterate before committing to build
- Business outcomes drive decisions
- Reduced risk of building wrong thing

For CFOs

Message: "Lower TCO through intelligent modernization, not wholesale replacement. 40-60% development cost reduction while freeing up 70% of IT budget trapped in maintenance."

Key Benefits:

- Significant cost reduction (40-60%)
- Predictable, transparent pricing
- Free up maintenance budget (70% typical)
- Lower total cost of ownership
- Faster time to value = faster ROI

SECTION 9: USE CASES AND APPLICATIONS

Legacy Modernization

Scenario: Large enterprise with mainframe systems running critical business processes

Challenge:

- Decades of business logic embedded in COBOL
- Tribal knowledge, minimal documentation
- Expensive to maintain, difficult to change
- Can't find developers who know the technology

AI/Works Solution:

1. CodeConcise + Mechanical Orchard extract requirements from legacy systems
2. Context Library provides modern architectural patterns
3. Super Spec created incorporating extracted requirements and modern practices
4. Code generated for cloud-native microservices
5. Phased migration with legacy systems running in parallel
6. Zero business disruption during transition

Outcomes:

- Modernized systems in months, not years
- Business logic preserved
- Knowledge captured in specifications and modern code
- Reduced maintenance costs
- Ability to iterate and innovate faster

Net New Application Development

Scenario: Healthcare provider wants to build patient portal

Challenge:

- Complex regulatory requirements (HIPAA)
- Integration with multiple systems (EHR, billing, scheduling)
- Need for rapid development
- User experience critical for adoption

AI/Works Solution:

1. Product Thinking framework validates concept with users (3 days)
2. Rapid prototyping creates validated UX (3 weeks)
3. Context Library provides HIPAA compliance requirements and FHIR specifications
4. Super Spec generated with all requirements and integrations
5. Code generated with security and compliance built in (3 months)
6. Production deployment with monitoring

Outcomes:

- 90-day delivery vs. 12-18 month traditional timeline
- HIPAA compliant by design
- Modern, user-friendly interface
- Seamless integration with existing systems
- Lower development cost

Microservices Architecture

Scenario: Retail company wants to move from monolith to microservices

Challenge:

- Existing monolith difficult to change
- Want to adopt microservices but don't know where to start
- Need to maintain business continuity
- Team lacks microservices expertise

AI/Works Solution:

1. Reverse Engineering analyzes existing monolith
2. Requirements extracted and categorized
3. Context Library provides microservices best practices
4. Super Spec defines microservices architecture with clear boundaries
5. Code generated for individual microservices
6. Strangler pattern used for gradual migration
7. Components Library captures reusable services

Outcomes:

- Clear path from monolith to microservices
- Microservices follow best practices automatically
- Gradual migration reduces risk
- Reusable services accelerate future development
- Team learns microservices through working code

Data Product Development

Scenario: Financial services firm needs customer 360 view

Challenge:

- Data scattered across multiple systems
- Different formats and quality levels
- Need for real-time insights
- Regulatory requirements for data handling

AI/Works Solution:

1. Requirements captured for customer 360 use cases

2. Context Library provides data mesh patterns and financial regulations
3. Super Spec defines data products, schemas and governance
4. Code generated for data pipelines, transformations and APIs
5. Data products published to Components Library
6. Observability and data quality monitoring built in

Outcomes:

- Unified customer view across organization
- High-quality, governed data products
- Reusable data products for future applications
- Compliance with financial regulations
- Real-time insights for business users

Agentic Application Development

Scenario: Insurance company wants AI agents for claims processing

Challenge:

- Complex claims rules and regulations
- Need for human oversight on edge cases
- Integration with legacy claims systems
- Variable claim types and complexity

AI/Works Solution:

1. Requirements captured for claims processing workflows
2. Context Library provides insurance regulations and claims patterns
3. Super Spec defines agentic workflows with human-in-the-loop
4. Agents generated for claim intake, validation, fraud detection and routing
5. Integration with legacy systems through APIs
6. Control Plane manages agent orchestration and escalation

Outcomes:

- Automated processing for routine claims
- Human oversight for complex cases
- Faster claims processing
- Improved accuracy and fraud detection
- Seamless integration with existing systems

SECTION 10: TECHNICAL CAPABILITIES

Supported Technologies

Programming Languages

- JavaScript/TypeScript
- Python
- Java
- C#/.NET
- Go
- Others as needed

Frontend Frameworks

- React
- Angular
- Vue.js
- Svelte
- Custom frameworks

Backend Frameworks

- Node.js/Express
- Spring Boot
- .NET Core
- Django/Flask
- FastAPI
- Others as needed

Cloud Platforms

- AWS
- Azure
- Google Cloud Platform
- Multi-cloud and hybrid cloud

Database Technologies

- Relational (PostgreSQL, MySQL, SQL Server, Oracle)
- NoSQL (MongoDB, Cassandra, DynamoDB)

- Graph (Neo4j)
- Time-series (InfluxDB, TimescaleDB)
- Cache (Redis, Memcached)

Integration Patterns

- REST APIs
- GraphQL
- gRPC
- Event-driven (Kafka, RabbitMQ, AWS SNS/SQS)
- EDI, SOAP (for legacy integration)

Infrastructure

- Kubernetes
- Docker
- Terraform
- CloudFormation
- Ansible

AI/ML Technologies

- Large Language Models (multiple providers)
- Small Language Models
- Custom ML models
- Vector databases
- Embedding systems

Security and Compliance

Security Features

- Automated security scanning
- Vulnerability management
- Threat modeling built into specifications
- OWASP Top 10 protection
- Zero Trust architecture patterns
- Encryption at rest and in transit
- Identity and access management

Compliance Frameworks

- GDPR (European data protection)
- HIPAA (US healthcare)
- SOX (financial reporting)
- PCI-DSS (payment card industry)
- ISO 27001
- SOC 2
- Industry-specific regulations

Data Governance

- Data classification
- Data lineage tracking
- Privacy by design
- Data residency management
- Consent management
- Right to be forgotten

Observability and Monitoring

Monitoring Capabilities

- Application performance monitoring (APM)
- Infrastructure monitoring
- Log aggregation and analysis
- Distributed tracing
- Real-user monitoring (RUM)
- Synthetic monitoring

Metrics and Alerting

- Business metrics dashboards
- Technical metrics and KPIs
- Anomaly detection
- Alert management and escalation
- SLA/SLO tracking

Observability Tools Support

- Datadog
- New Relic
- Dynatrace
- Splunk

- ELK Stack (Elasticsearch, Logstash, Kibana)
- Prometheus + Grafana
- CloudWatch, Azure Monitor, Google Cloud Monitoring

Integration Capabilities

Enterprise System Integration

- ERP systems (SAP, Oracle, Microsoft Dynamics)
- CRM systems (Salesforce, Microsoft Dynamics, HubSpot)
- HRMS (Workday, AI/Works, SuccessFactors)
- Service management (ServiceNow, Jira Service Management)

Industry-Specific Integration

- **Healthcare**: HL7, FHIR, DICOM
- **Financial Services**: ISO 20022, FIX, SWIFT
- **Retail**: EDI, GS1, POS systems
- **Manufacturing**: OPC UA, MQTT, Industrial IoT

Legacy System Integration

- Mainframe (COBOL, JCL via Mechanical Orchard partnership)
- AS/400
- SOAP web services
- File-based integration (FTP, SFTP)
- Database replication

SECTION 11: IMPLEMENTATION AND DELIVERY

Engagement Models

3-3-3 Fixed-Price Engagement

Best For:

- Well-defined problem or opportunity
- Clear business outcomes desired
- Need for predictable timeline and cost
- Want to validate before large investment

Deliverables:

- Phase 1 (3 days): Validated concept or pivot decision
- Phase 2 (3 weeks): Working prototype with user validation
- Phase 3 (3 months): Production system delivering business value

Investment: $675,000 - $2,350,000 depending on complexity

Platform Licensing

Best For:

- Organizations wanting to adopt AI/Works for multiple projects
- Internal development teams using the platform
- Long-term modernization programs

Includes:

- Access to AI/Works platform
- Context Library
- Components Library
- Control Plane
- Training and enablement

Pricing: Custom based on organization size and usage

Managed Services

Best For:

- Organizations wanting ongoing support
- Complex, mission-critical systems
- Need for operational expertise

Includes:

- Platform access and usage
- Dedicated Thoughtworks team
- Ongoing operations and support

- Continuous evolution and improvement

Pricing: Custom based on scope and service levels

Team Structure

Thoughtworks Team Roles

Product Owner / Product Manager

- Captures and prioritizes requirements
- Validates prototypes with stakeholders
- Ensures business value delivery

Experience Designer (UX/UI)

- Conducts user research
- Creates prototypes and designs
- Validates usability

Architect

- Defines technical architecture
- Reviews Super Spec
- Ensures architectural integrity

Platform Engineer

- Operates AI/Works platform
- Configures integrations
- Manages deployments

Quality Engineer

- Reviews test coverage
- Validates security and compliance
- Ensures quality gates

Delivery Lead

- Overall engagement leadership
- Stakeholder management
- Timeline and scope management

Client Team Involvement

Executive Sponsor

- Provides strategic direction
- Removes organizational barriers
- Champions change

Product Owner (Client Side)

- Represents business stakeholders
- Validates requirements and priorities
- Accepts deliverables

Technical Lead

- Provides technical context
- Reviews architecture
- Knowledge transfer recipient

Subject Matter Experts

- Provide domain knowledge
- Validate requirements
- User testing participants

Operations Team

- Production environment access
- Deployment support
- Ongoing operations transition

Knowledge Transfer

Built-In Knowledge Transfer

Super Spec as Living Documentation

- Comprehensive documentation of system
- Architecture decisions recorded
- Requirements traceable to code

Generated Code Quality

- Follows organizational standards
- Well-structured and commented
- Easy for teams to understand and maintain

Component Libraries

- Reusable components documented
- Patterns captured for future use
- Examples and templates available

Formal Knowledge Transfer Activities

Architecture Workshops

- Review of overall architecture
- Deep-dive on key design decisions
- Q&A with technical teams

Code Walkthroughs

- Review of generated code
- Explanation of patterns and practices
- Customization guidance

Platform Training

- How to use AI/Works for future projects
- Context Library management
- Component Library contributions

Operations Handoff

- Monitoring and observability
- Incident response procedures
- Maintenance and evolution

Success Metrics

Project Success Metrics

Delivery Metrics

- Time from concept to production (target: 90 days)
- Budget adherence (target: within planned range)

- Scope delivered (target: 100% of committed scope)

Quality Metrics

- Code quality scores (target: A grade)
- Test coverage (target: >80%)
- Security vulnerabilities (target: zero critical/high)
- Performance benchmarks met (target: 100%)

Business Outcome Metrics

- Business KPIs defined in concept phase
- User adoption and satisfaction
- Operational cost reduction
- Revenue impact or cost avoidance

Platform Success Metrics

Efficiency Metrics

- Code generation success rate
- Time to generate vs. manual development
- Reuse rate of components from libraries
- Reduction in manual effort

Quality Metrics

- Defect density in generated code
- Production incidents
- Security vulnerability detection and remediation time
- Technical debt measures

Value Metrics

- Development cost reduction (target: 40-60%)
- Time to market improvement
- Maintenance cost reduction
- Developer satisfaction

SECTION 12: FREQUENTLY ASKED QUESTIONS

General Platform Questions

What makes AI/Works different from other code generation tools?

AI/Works is not just code generation—it's architectural synthesis. While other tools generate code from specifications, AI/Works:

- Creates the specifications themselves through AI-powered requirements analysis
- Incorporates 30 years of Thoughtworks engineering best practices
- Handles legacy modernization AND new development
- Generates tests from the same specification as the code
- Produces code that maintains architectural integrity over time
- Includes operations and security, not just development

Can AI/Works work with our existing technology stack?

Yes. AI/Works is designed to integrate with existing enterprise technology stacks:

- Supports major programming languages, frameworks and cloud platforms
- Integrates with existing systems through standard protocols
- Works alongside legacy systems during modernization
- Adapts to organizational standards through the Context Library
- Doesn't require ripping and replacing existing systems

How much does AI/Works cost?

Pricing varies based on engagement model:

- **3-3-3 Fixed-Price:** $675K - $2.35M for 90-day delivery
- **Platform Licensing:** Custom based on organization size and usage
- **Managed Services:** Custom based on scope and service levels

Compare this to traditional development costs of $3M-10M+ over 12-24 months with higher risk.

Is the generated code proprietary or can we own it?

You fully own all code generated by AI/Works. There are no licensing restrictions on the generated code. The platform itself (AI/Works) is proprietary to Thoughtworks, but the output belongs to you.

What if we need to customize or modify generated code?

Generated code is designed to be maintainable and modifiable:

- Follows standard practices and patterns
- Well-structured and commented
- No proprietary lock-in or special dependencies
- Can be modified like any other code
- Better yet: modify the Super Spec and regenerate rather than patching

Technical Questions

What programming languages does AI/Works support?

AI/Works supports all major enterprise programming languages:

- JavaScript/TypeScript, Python, Java, C#/.NET, Go
- Frontend frameworks: React, Angular, Vue, Svelte
- Backend frameworks: Spring, .NET Core, Express, Django, FastAPI
- Can adapt to organizational language preferences

How does AI/Works handle security?

Security is built-in from the start:

- Security requirements incorporated into Super Spec
- Generated code follows security best practices (OWASP Top 10)
- Automated security scanning during generation
- Continuous security monitoring in production
- Regular security patching through code regeneration
- Compliance with industry standards (HIPAA, PCI-DSS, etc.)

Can AI/Works integrate with our existing CI/CD pipelines?

Yes, AI/Works generates code that integrates with standard CI/CD tools:

- GitHub Actions, GitLab CI, Jenkins, Azure DevOps, etc.
- Generates pipeline configurations as part of code generation
- Follows your deployment processes and standards

- Can trigger deployments through your existing tools

How does AI/Works handle database design and migrations?

AI/Works handles databases comprehensively:

- Designs database schemas based on requirements
- Generates migration scripts for schema changes
- Supports relational, NoSQL, graph and other database types
- Follows data governance and privacy requirements
- Includes data quality and integrity checks

Legacy Modernization Questions

Can AI/Works really extract requirements from legacy code?

Yes, through CodeConcise (our proprietary technology):

- Uses AST-based analysis to understand code structure
- Graph-based discoverability maps dependencies
- LLM-based interpretation understands business logic
- Mechanical Orchard partnership handles mainframes (COBOL, JCL)
- Extracts not just what code does, but why it does it

Do we have to modernize everything at once?

No, AI/Works supports incremental modernization:

- Strangler pattern to gradually replace legacy components
- Legacy and modern systems run in parallel
- Integration layer connects old and new
- Business continuity maintained throughout
- Migrate at your own pace based on priorities and risk tolerance

What if our legacy system documentation is incomplete or incorrect?

That's exactly why we extract from the code itself:

- Documentation is often outdated or missing
- Code represents the actual business logic
- CodeConcise extracts what the system really does
- No reliance on potentially incorrect documentation
- Creates accurate specifications from actual system behavior

Implementation Questions

How long does a typical AI/Works implementation take?

Using the 3-3-3 methodology:

- **3 days** to validate concept
- **3 weeks** for validated prototype
- **3 months** to production deployment
- **Total: 90 days** from concept to delivering business value

Traditional development typically takes 12-24 months for similar outcomes.

What level of involvement is required from our team?

Client team involvement is essential but manageable:

- **Executive Sponsor:** Strategic direction, remove barriers (~2-4 hours/week)
- **Product Owner:** Requirements, validation (~20 hours/week)
- **Technical Lead:** Context, architecture review (~10-15 hours/week)
- **SMEs:** Domain knowledge, testing (~5-10 hours/week)
- **Operations:** Environment access, deployment support (~5 hours/week)

The AI/Works platform and Thoughtworks team handle the heavy lifting.

Can our developers learn to use the platform themselves?

Yes, knowledge transfer is built into every engagement:

- Platform training provided
- Architecture and code walkthroughs
- Documentation and examples
- Ongoing support available
- Platform licensing option for internal use

Many clients adopt AI/Works for their internal teams after initial engagement.

What happens after the initial 90 days?

Multiple options for continued success:

- **Managed Services:** Thoughtworks continues to operate and evolve the system
- **Platform Licensing:** Your team uses AI/Works for future projects

- **Transition:** Full handoff to your internal teams with knowledge transfer
- **Hybrid:** Thoughtworks supports while building internal capability

Business Questions

What's the typical ROI and when does it materialize?

ROI is realized quickly:

- **Immediate:** 40-60% development cost reduction vs. traditional
- **3 months:** Production system delivering business value
- **6-12 months:** Reduced maintenance costs, freed IT budget
- **Ongoing:** Compound benefits from reusable components

Typical payback period: 6-12 months

How do we measure success?

Success is measured across multiple dimensions:

- **Delivery:** Time to production, budget adherence, scope delivered
- **Quality:** Code quality, test coverage, security, performance
- **Business:** KPIs defined in concept phase, user adoption, cost reduction
- **Platform:** Efficiency gains, reuse rates, developer satisfaction

Clear metrics defined upfront and tracked throughout.

What industries does AI/Works support?

AI/Works supports all major industries with specific expertise in:

- **Financial Services:** Banking, insurance, capital markets
- **Healthcare:** Providers, payers, life sciences
- **Retail:** E-commerce, omnichannel, supply chain
- **Manufacturing:** Industrial IoT, supply chain, quality
- **Public Sector:** Government services, digital transformation
- **Technology:** SaaS, platforms, digital products

Context Library includes industry-specific assets for major sectors.

How does AI/Works compare to hiring more developers?

AI/Works multiplies developer productivity rather than replacing developers:

- **Traditional:** Hire 10 developers, get 10 developers worth of output
- **With AI/Works:** 3-4 developers + AI/Works = 15-20 developers worth of output
- **Benefits:** Speed, consistency, quality, lower risk
- **Result:** Same or better outcomes with fewer people, faster delivery

Developers focus on high-value work; AI/Works handles repetitive tasks.

Risk and Governance Questions

What are the risks of using AI to generate code?

We've designed AI/Works to mitigate AI risks:

- **Guardrails:** Control Plane prevents inappropriate outputs
- **Validation:** Comprehensive testing validates all generated code
- **Review:** Human architects review specifications and architecture
- **Standards:** Follows organizational practices, not random AI decisions
- **Transparency:** Clear documentation of what was generated and why
- **Control:** You control the specifications, AI/Works implements them

How do you ensure generated code quality?

Multiple layers ensure quality:

- **Input:** Comprehensive Super Spec with clear requirements
- **Generation:** Based on 30 years of Thoughtworks best practices
- **Testing:** Automated testing validates correctness
- **Scanning:** Security and quality tools analyze code
- **Review:** Architects and engineers review outputs
- **Metrics:** Code quality metrics tracked and enforced
- **Evolution:** Ability to regenerate maintains quality over time

What governance controls are available?

Comprehensive governance through Control Plane:

- **Access Control:** Role-based access to platform features
- **Approval Workflows:** Required approvals for key decisions
- **Audit Trails:** Complete history of all actions
- **Policy Enforcement:** Automated compliance checking
- **Quality Gates:** Must-pass checkpoints before deployment
- **Observability:** Full visibility into platform operations

- **Cost Controls:** Budget tracking and alerts

What if AI/Works doesn't meet our needs?

Multiple risk mitigation approaches:

- **3-3-3 Phased Approach:** Validate at each phase before continuing
- **Prototype First:** See working prototype in 3 weeks
- **Flexibility:** Can adjust approach based on learnings
- **Thoughtworks Partnership:** Not just software, experienced consultants
- **Escape Hatches:** Code is standard, no lock-in to platform
- **Track Record:** Proven success with major enterprises

SECTION 13: CASE STUDIES AND PROOF POINTS

Case Study 1: Healthcare Claims Processing Modernization

Client Profile

Major health insurance provider with 10+ million members, processing 50M+ claims annually

Challenge

- Legacy mainframe system running COBOL code from 1980s
- Claims processing taking 45-60 days
- High error rates requiring manual intervention (30% of claims)
- Unable to adapt to new regulatory requirements
- Difficulty finding developers who know COBOL
- Annual maintenance costs exceeding $15M

AI/Works Solution Approach

Phase 1 - Legacy Analysis (2 weeks)

- CodeConcise + Mechanical Orchard extracted requirements from mainframe
- Identified 300+ business rules embedded in COBOL
- Mapped data flows and integrations
- Captured undocumented business logic

Phase 2 - Specification Development (3 weeks)

- Super Spec created incorporating:
  - Extracted business rules
  - HIPAA compliance requirements from Context Library
  - Healthcare standards (X12, FHIR) from Context Library
  - Modern claims processing patterns
- Prototype validated with claims processors and members

Phase 3 - Code Generation and Deployment (8 weeks)

- Cloud-native microservices generated
- Integration with existing systems maintained
- Automated testing generated from Super Spec
- Phased rollout alongside legacy system

Results

- **Development Time:** 13 weeks vs. estimated 18-24 months traditional
- **Claims Processing Time:** Reduced from 45-60 days to 7-10 days
- **Error Rate:** Reduced from 30% to 5%
- **Cost Savings:** $12M annual maintenance cost reduction
- **Developer Productivity:** Modern tech stack easier to maintain and evolve
- **Business Agility:** New requirements now implemented in weeks vs. months

Client Quote

"We thought we'd be stuck with our mainframe forever. AI/Works gave us a path to modernization that didn't require shutting down our business. The 7x improvement in processing time was beyond what we hoped for." - SVP of Operations

Case Study 2: Retail Omnichannel Platform

Client Profile

National retail chain with 500+ stores, $5B annual revenue, building digital presence

Challenge

- Need to build modern e-commerce and mobile platform
- Must integrate with existing POS, inventory and ERP systems
- Competitive pressure requiring rapid launch
- Limited internal technical expertise
- Previous digital initiatives failed to deliver

AI/Works Solution Approach

Phase 1 - Concept Validation (3 days)

- Rapid ideation workshops with merchandising, operations, IT
- User research with customers
- Technical feasibility assessment
- Go decision with clear business case

Phase 2 - Validated Prototype (3 weeks)

- High-fidelity prototypes for web and mobile
- Integration architecture defined
- User testing with 50+ customers
- Refined based on feedback

Phase 3 - Production Deployment (3 months)

- Full e-commerce platform with web and mobile apps
- Integration with POS, inventory, ERP, payment systems
- Personalization and recommendation engine
- Store associate tools for BOPIS (Buy Online Pick-up In Store)
- Customer service agent for support

Results

- **Time to Market:** 90 days vs. 12-18 months estimated
- **Revenue Impact:** $150M digital revenue in first year
- **Customer Satisfaction:** 4.5/5 star rating
- **Integration Success:** Seamless connection to all critical systems
- **Operational Efficiency:** Store associates' productivity increased 25%
- **Cost:** $1.8M total vs. $8M+ for traditional development

Client Quote

"We needed to move fast to stay competitive. The 3-3-3 approach let us validate our concept quickly, then get to market in 90 days. The platform not only met our needs but exceeded them with features we didn't even know we needed." - Chief Digital Officer

Case Study 3: Financial Services Regulatory Compliance

Client Profile

Regional bank with $50B in assets, facing new regulatory reporting requirements

Challenge

- New regulatory reporting requirements (CECL) with 18-month deadline
- Data scattered across 15+ legacy systems
- Complex calculations and aggregations required
- Audit trail and governance requirements
- Risk of significant fines for non-compliance

AI/Works Solution Approach

Phase 1 - Requirements Analysis (4 weeks)

- Regulatory requirements captured from guidelines
- Context Library provided compliance frameworks
- Legacy system analysis identified data sources
- Data quality assessment completed

Phase 2 - Data Platform Development (10 weeks)

- Data products created for required calculations
- Integration with 15 legacy systems
- Automated data quality checks
- Audit trail and governance built-in
- Reporting dashboards generated

Results

- **Compliance Achievement:** Delivered 6 months ahead of deadline
- **Accuracy:** 99.8% accuracy in regulatory calculations
- **Audit Success:** Passed regulatory audit on first review
- **Reusability:** Data platform now used for other reporting needs
- **Risk Avoidance:** Avoided potential $10M+ in fines

- **Ongoing Value:** Platform continues to provide insights for business

Client Quote

"We were facing a compliance deadline we didn't think we could meet. AI/Works not only got us compliant but gave us a data platform that's become a strategic asset. The audit trail capabilities were critical for regulatory approval." - Chief Risk Officer

Case Study 4: Manufacturing IoT and Predictive Maintenance

Client Profile

Global manufacturer with 50+ facilities, complex equipment, high downtime costs

Challenge

- Unplanned equipment downtime costing $2M+ per incident
- Reactive maintenance approach
- Data from equipment not being utilized
- Need to predict failures before they occur
- Multiple equipment types and vendors

AI/Works Solution Approach

Phase 1 - Concept Development (3 days)

- Workshops with operations, maintenance and IT
- Identified high-value use cases
- Validated approach with facility managers

Phase 2 - Prototype (3 weeks)

- IoT data ingestion from equipment sensors
- Predictive maintenance models for 3 critical equipment types
- Dashboard for maintenance teams
- Validation with actual equipment data

Phase 3 - Production Rollout (3 months)

- Full platform for all equipment types
- AI agents for anomaly detection

- Integration with maintenance scheduling system
- Mobile app for technicians
- Expansion to all 50 facilities

Results

- **Downtime Reduction:** 65% reduction in unplanned downtime
- **Cost Savings:** $20M+ annual savings from avoided downtime
- **Maintenance Efficiency:** 40% reduction in maintenance costs
- **Production Quality:** Improved product quality from better equipment performance
- **ROI:** 10x return on investment in first year
- **Scalability:** Rolled out to all facilities within 6 months

Client Quote

"The predictive maintenance capabilities have transformed our operations. We're catching issues weeks before they would have caused catastrophic failures. The ROI has been extraordinary." - VP of Operations

Proof Points Summary

Aggregate Results Across Clients

Development Speed:

- Average 85 days from concept to production
- 75% faster than traditional development timelines
- 90%+ of projects delivered on time

Cost Efficiency:

- Average 55% reduction in development costs
- 60% reduction in maintenance costs
- Typical ROI achieved within 9 months

Quality Metrics:

- Average code quality score: A (>85/100)
- Average test coverage: 87%
- 70% fewer production defects than traditional development

Business Impact:

- Average business KPI improvement: 45%
- Average operational cost reduction: 40%
- Customer satisfaction improvement: 30%

Client Satisfaction

- Net Promoter Score (NPS): 67 (considered "excellent")
- 95% of clients would recommend AI/Works
- 80% of clients engaged for additional projects

SECTION 14: ROADMAP AND FUTURE DEVELOPMENT

Current Capabilities (Available Now)

Core Platform

- Requirements capture and enrichment
- Legacy system reverse engineering (CodeConcise)
- Super Spec generation
- Code generation for major languages and frameworks
- Automated test generation
- Continuous deployment
- Runtime operations and monitoring
- Control Plane for governance and observability

Integrations

- Major cloud platforms (AWS, Azure, GCP)
- Enterprise systems (SAP, Salesforce, ServiceNow, Workday)
- DevOps tools (GitHub, GitLab, Jenkins, Azure DevOps)
- Monitoring tools (Datadog, New Relic, Splunk)
- Legacy systems (via Mechanical Orchard partnership)

Context Library

- Leading design systems

- Industry specifications (Healthcare, Financial Services, Retail)
- Regulatory frameworks
- Thoughtworks best practices
- Security and compliance patterns

Near-Term Enhancements (Next 6 Months)

Advanced Agent Capabilities

- Expanded agent library (customer service, data analysis, content generation)
- Multi-agent orchestration improvements
- Agent learning and adaptation
- Custom agent development framework

Enhanced Legacy Modernization

- Expanded language support (COBOL, PL/I, RPG)
- Database migration tools
- UI modernization specifically
- Legacy to microservices patterns

Industry Specialization

- Healthcare-specific accelerators (EHR integration, care coordination)
- Financial services compliance library (Basel, Dodd-Frank)
- Retail omnichannel patterns
- Manufacturing IoT templates

Platform Improvements

- Performance optimization for larger codebases
- Enhanced real-time collaboration features
- Improved visualization of Super Spec
- Enhanced debugging and troubleshooting tools

Medium-Term Vision (6-18 Months)

AI/ML Integration

- Custom model training on client data
- AutoML for predictive models

- Computer vision integration
- Natural language processing enhancements

Ecosystem Expansion

- Partner integration marketplace
- Third-party agent marketplace
- Community-contributed components
- Open APIs for extensions

Global Expansion

- Multi-language support (German, French, Spanish, Japanese, Chinese)
- Regional compliance frameworks (EU, APAC, Latin America)
- Local cloud provider support
- Regional data centers for data sovereignty

Advanced Operations

- Self-healing applications
- Autonomous optimization
- Predictive capacity planning
- Advanced chaos engineering

Long-Term Vision (18+ Months)

Full Lifecycle AI

- AI-powered product discovery and ideation
- Autonomous requirements gathering from user behavior
- Self-evolving applications based on usage patterns
- AI-driven business model innovation

Quantum-Ready Architecture

- Preparation for quantum computing integration
- Quantum-safe cryptography
- Hybrid classical-quantum algorithms

Extended Reality Integration

- VR/AR development capabilities

- Spatial computing platforms
- Metaverse application development

Sustainability Focus

- Green software patterns
- Carbon footprint optimization
- Sustainable architecture decisions
- Energy-efficient code generation

Research Initiatives

AI Safety and Ethics

- Explainable AI for generated code
- Bias detection and mitigation
- Responsible AI governance frameworks
- Transparency and interpretability improvements

Developer Experience

- Natural language to code improvements
- Voice-driven development
- AR-assisted coding
- Brain-computer interface exploration (research phase)

Performance Innovation

- Edge computing optimization
- 5G-native applications
- Low-latency patterns
- Serverless optimization

SECTION 15: GETTING STARTED WITH AI/Works

Evaluation Process

Step 1: Initial Consultation (1 hour)

- Discuss your challenges and goals
- Explore AI/Works capabilities and fit
- Review success stories relevant to your industry
- Determine next steps

Step 2: Discovery Workshop (Half day)

- Deep-dive into specific use cases
- Review existing systems and architecture
- Assess technical and organizational readiness
- Identify pilot project candidates

Step 3: Pilot Project Proposal (1 week)

- Thoughtworks team develops detailed proposal
- Includes scope, timeline, investment and expected outcomes
- 3-3-3 approach for pilot project
- Risk assessment and mitigation plan

Step 4: Decision and Kickoff

- Review and approve proposal
- Assemble joint team
- Kickoff workshop to align on objectives
- Begin 3-3-3 engagement

Ideal Pilot Project Characteristics

Good Pilot Projects:

- Clear business value and stakeholder support
- Reasonable scope (deliverable in 3 months)
- Involves legacy system OR complex new development
- Requires integration with existing systems
- Has engaged business stakeholders
- Success measurable with defined metrics

Avoid for First Pilot:

- Mission-critical systems (until proven)
- Extremely complex regulatory requirements

- Ill-defined requirements
- Projects without clear business sponsor
- Systems scheduled for decommission
- Purely experimental/"science project" initiatives

Prerequisites for Success

Organizational Readiness

- Executive sponsorship and support
- Willingness to adopt new approaches
- Openness to agile/iterative methods
- Ability to make timely decisions
- Realistic expectations about change

Technical Readiness

- Access to existing systems and documentation
- Development, staging and production environments
- Basic CI/CD pipeline (or willingness to establish)
- Cloud infrastructure or path to cloud
- Security and compliance requirements understood

Team Availability

- Product Owner (~20 hours/week)
- Technical Lead (~10-15 hours/week)
- Subject Matter Experts (~5-10 hours/week)
- Operations support (~5 hours/week)
- Executive Sponsor (~2-4 hours/week)

What to Expect

Throughout Engagement

Communication:

- Daily standups during active development
- Weekly stakeholder updates
- Bi-weekly executive briefings
- Slack/Teams channel for real-time collaboration

Deliverables:

- Phase 1: Concept validation document, go/no-go recommendation
- Phase 2: Working prototype, validation results, architecture blueprint
- Phase 3: Production application, documentation, knowledge transfer

Milestones:

- Week 1: Requirements complete, prototype design approved
- Week 3: Prototype demonstrable, user feedback gathered
- Week 6: Core functionality complete, testing underway
- Week 10: Production-ready, deployment planned
- Week 12: Deployed to production, monitoring active

After Engagement

Ongoing Support Options:

- Managed services for continued operation
- Platform licensing for internal team use
- Retainer for ongoing enhancements
- Community support and documentation
- Annual reviews and optimization

Expansion Opportunities:

- Additional use cases and applications
- Platform adoption across organization
- Training and enablement for internal teams
- Strategic partnership for digital transformation

Frequently Asked Questions About Getting Started

Can we do a proof of concept before a full pilot?

Yes. We offer shorter proof-of-concept engagements (1-2 weeks) to demonstrate specific capabilities on a constrained problem. This can help build confidence before committing to a full pilot.

What if our organization isn't ready for cloud?

AI/Works can work with on-premises infrastructure, though cloud-native approaches offer the most benefits. We can discuss hybrid approaches or provide a path to cloud readiness as part of the engagement.

How much training is required for our team?

Knowledge transfer is built into the engagement:

- Ongoing learning throughout the 3 months
- Formal training sessions included
- Documentation and examples provided
- Post-engagement support available

Most teams are comfortable with generated code and platform basics by the end of the engagement.

What happens if we want to change requirements mid-project?

The 3-3-3 approach accommodates change:

- Phase 1 and 2 are designed for refinement
- Phase 3 allows for reasonable adjustments
- Super Spec can be updated and code regenerated
- Change control process balances flexibility and stability

Major scope changes would require discussion and potentially adjustments to timeline or investment.

APPENDIX A: GLOSSARY OF TERMS

Agentic AI: AI systems that can operate autonomously to complete tasks, make decisions and take actions without constant human oversight.

AI/Works (Agentic Delivery Platform): Thoughtworks' comprehensive platform for building, modernizing and operating software systems using AI agents throughout the lifecycle.

Architecture Decision Record (ADR): Documentation that captures key architectural decisions, their context and rationale.

AST (Abstract Syntax Tree): A tree representation of the structure of source code, used by CodeConcise to understand code at a deep level.

CodeConcise: Thoughtworks' proprietary technology for extracting requirements and business logic from existing applications.

Components Library: A repository of reusable technical building blocks including microservices, data products and agents.

Context Library: A comprehensive knowledge repository containing design systems, industry specifications, regulatory requirements and best practices.

Control Plane: The management layer that orchestrates AI infrastructure, enforces governance and ensures quality across the platform.

3-3-3 Method: Thoughtworks' methodology for rapid delivery: 3 days for concept validation, 3 weeks for prototype, 3 months for production.

LLM (Large Language Model): Advanced AI models trained on vast amounts of text data, used for complex reasoning and generation tasks.

Mechanical Orchard: Thoughtworks' partner specializing in mainframe modernization and legacy system transformation.

SLM (Small Language Model): Smaller, more efficient AI models used for specialized tasks that don't require the largest models.

Super Spec: A comprehensive, machine-readable specification document that serves as the single source of truth for the entire software system.

APPENDIX B: TECHNICAL SPECIFICATIONS

Platform Architecture

Infrastructure Requirements

- **Cloud:** AWS, Azure, or GCP with standard services
- **Compute:** Kubernetes cluster (minimum 3 nodes)

- **Storage:** Object storage (S3, Azure Blob, GCS)
- **Database:** PostgreSQL 13+ for platform metadata
- **Cache:** Redis 6+ for session and application cache
- **Message Queue:** RabbitMQ, Kafka, or cloud-native equivalent

Network Requirements

- **Bandwidth:** 100 Mbps minimum, 1 Gbps recommended
- **Latency:** <50ms to cloud provider region
- **Connectivity:** VPN or Direct Connect for hybrid deployments
- **Firewall:** Outbound HTTPS (443) required, inbound configurable

Security Requirements

- **Authentication:** OAuth 2.0 / OIDC, SAML 2.0
- **Encryption:** TLS 1.3 for transit, AES-256 for rest
- **Access Control:** RBAC with least privilege principle
- **Audit:** Comprehensive audit logging to SIEM
- **Compliance:** SOC 2 Type II certified platform

API Specifications

Platform APIs

- **RESTful APIs:** JSON over HTTPS
- **GraphQL API:** For complex queries and mutations
- **WebSocket API:** For real-time updates and collaboration
- **Webhook API:** For event notifications
- **Rate Limiting:** 1000 requests/minute default, configurable

Integration Protocols

- **HTTP/HTTPS:** REST and SOAP
- **Message Queues:** AMQP, MQTT, Kafka protocol
- **Databases:** JDBC, ODBC, native drivers
- **File Transfer:** SFTP, FTPS, S3-compatible APIs

Performance Characteristics

Code Generation

- **Simple Service:** 2-5 minutes
- **Complex Application:** 15-30 minutes
- **Full System:** 1-4 hours
- **Throughput:** 10+ concurrent generations

Platform Response Times

- **UI Interactions:** <200ms p95
- **API Calls:** <500ms p95
- **Code Generation:** Depends on complexity
- **Deployment:** 5-15 minutes typical

APPENDIX C: COMPLIANCE AND CERTIFICATIONS

Platform Certifications

- **SOC 2 Type II:** Annual audit and certification
- **ISO 27001:** Information security management
- **GDPR Compliant:** Data protection and privacy
- **HIPAA Eligible:** For healthcare deployments
- **FedRAMP In Progress:** For US government use

Supported Compliance Frameworks

- **GDPR:** General Data Protection Regulation (EU)
- **HIPAA:** Health Insurance Portability and Accountability Act (US)
- **SOX:** Sarbanes-Oxley Act (US)
- **PCI-DSS:** Payment Card Industry Data Security Standard
- **ISO 27001:** Information security management
- **SOC 2:** Service Organization Control 2
- **NIST:** National Institute of Standards and Technology frameworks
- **CCPA:** California Consumer Privacy Act
- **Industry-Specific:** Various industry regulatory requirements

Security Practices

- **Secure SDLC:** Security integrated throughout development
- **Vulnerability Management:** Continuous scanning and patching
- **Penetration Testing:** Annual third-party testing
- **Incident Response:** 24/7 monitoring and response capability
- **Data Protection:** Encryption, access control, data residency
- **Supply Chain Security:** Vetted dependencies, SCA scanning

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DOCUMENT METADATA

Version: 1.0 **Last Updated:** November 2025 **Document Owner:** Thoughtworks AI/Works Product Team **Classification:** Public **Purpose:** Knowledge Base for AI Assistants and Sales/Technical Teams

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USAGE NOTES FOR AI ASSISTANTS

This knowledge base document is designed to be used by AI assistants to answer questions about Thoughtworks AI/Works. When using this document:

1. **Always cite your sources:** Reference specific sections when providing information
2. **Stay within scope:** Only provide information contained in this document
3. **Acknowledge limitations:** If information is not in the document, say so
4. **Maintain accuracy:** Quote or paraphrase accurately, don't embellish
5. **Consider context:** Tailor responses to the questioner's role and needs
6. **Emphasize differentiation:** Highlight what makes AI/Works unique
7. **Be conversational:** Translate technical details appropriately for the audience
8. **Suggest next steps:** Guide users toward engagement or additional resources

Common Question Patterns:

- "What is AI/Works?" → Section 1 (Executive Overview)
- "How does it work?" → Section 2 (Architecture) and Section 3 (Components)
- "How much does it cost?" → Section 4 (3-3-3 Method, Pricing)
- "What makes it different?" → Section 7 (Competitive Positioning)
- "Can it handle [technology/industry]?" → Section 10 (Technical Capabilities)
- "Show me examples" → Section 13 (Case Studies)
- "How do we get started?" → Section 15 (Getting Started)

Tone Guidelines:

- Professional but approachable
- Confident but not arrogant
- Honest about limitations
- Enthusiastic about capabilities
- Respectful of competitive alternatives while highlighting AI/Works advantages

Field Guide

Commercial scope and positioning

What is AI/Works from a commercial perspective?

AI/Works is an agentic software development, operations, and management platform available as a licensed set of platform components complemented by optional services and accelerators. It is not a resale of third-party AI models. It is not a bespoke AI platform built for individual clients.

What is included in the AI/Works platform versus delivered separately?

The platform includes a runtime, orchestration, governance, and standard analytics enabling different capabilities - including code to spec, requirements enhancements, a proprietary context library, a proprietary component library, a proprietary capability and industry solution library, dynamic super spec generation, spec to code generation, and AIOps. Custom AI development, advanced integrations, or bespoke analytics are delivered as separate, clearly scoped engagements.

How should AI/Works be positioned relative to traditional services?

AI/Works is the foundation that enables scalable AI delivery of high quality enterprise software enabling an entirely new software development, maintenance, and modernization lifecycle. Services accelerate adoption and value, but do not replace the platform.

Is AI/Works a product, a platform, or a service?

AI/Works is a platform offering, licensed on a subscription and consumption basis, with optional services layered on top. AI/Works does generate a recurring stream of code which is constantly updated with regulatory, cybersecurity, functional, and technical supply chain modifications so clients can choose to subscribe to the code base generated by the platform on a recurring basis to replace their existing code base maintenance contracts.

Licensing Model

How is AI/Works licensed?

AI/Works is licensed via a subscription with consumption pricing based on token usage, granting the right to use the platform within an agreed scope.

Is AI/Works sold as a subscription or project-based offering?

The platform is always subscription-based. Projects apply only to implementation, configuration, or custom use case development.

Is AI/Works licensed per client, per entity, or enterprise-wide?

Licensing is typically enterprise-scoped, with commercial tiers reflecting scale, complexity, and usage profile.

Does the license grant exclusivity or special rights?

No. AI/Works is non-exclusive and designed as a shared, continuously evolving platform. Clients may choose to develop their own company-specific enhancements to the context library and apply those enhancements as they use the platform.

Deployment & Hosting

Where is AI/Works hosted by default?

AI/Works is delivered as a managed platform, operated and maintained centrally.

Can AI/Works be deployed in a client environment?

Client-hosted deployments are not the default and require explicit review due to operational and IP implications. This will change over time as the platform evolves.

Is on-prem or air-gapped deployment supported?

These scenarios are considered exceptional and evaluated case by case.

Who is responsible for operating and maintaining the platform?

Platform operations, upgrades, and security are handled centrally by the AI/Works team to ensure consistency and scalability.

Models & AI Assets

Does AI/Works include foundation models?

AI/Works provides orchestrated access to approved models, abstracted behind the platform.

Can clients request a custom or dedicated model?

Not yet. AI/Works is not yet positioned to deliver bespoke foundation models per client.

Is model fine-tuning supported?

Fine-tuning is not part of the standard offering and requires explicit approval and separate commercial treatment.

Are third-party or client-provided models supported?

They will be supported where they can be integrated safely within AI/Works governance and operational controls.

Customisation vs Configuration

What configuration is included in AI/Works?

Configuration includes prompts, workflows, thresholds, policies, and integrations within the platform’s standard capabilities.

What is considered “custom development”?

Any change requiring new logic, new workflows, or new integrations beyond standard configuration.

When does a request move from platform usage to a separate engagement?

When it introduces client-specific logic, build effort, or operational responsibility beyond the platform baseline. To be clear, the platform can accept and process client specific context library or component library assets.

Commercial Model & Pricing Logic

How is AI/Works priced at a high level?

Pricing is value- and entitlement-based, reflecting scope, scale, and complexity — not raw technical consumption.

Is pricing based on tokens, compute, or usage?

The primary pricing logic is based on subscription fees for different levels of usage. Where appropriate, specific token consumption costs will be charged to clients, but at this point in time the tokens and compute are internally metered for control and not used as pricing units.

What drives price differences between clients or tiers?

Factors include number of users, enabled capabilities, environments, governance needs, and expected scale.

How are additional capabilities or scale handled commercially?

Through tier uplift or add-ons, not per-unit consumption pricing.

Usage, Metering & Limits

Is AI/Works usage unlimited?

Usage is subject to a fair-use envelope aligned to enterprise usage patterns.

What is meant by “fair use”?

Usage consistent with the licensed scope and expected adoption profile of the client.

What happens if usage significantly exceeds expectations?

Sustained excess usage triggers a commercial review, not automatic penalties.

Is usage monitored, and for what purpose?

Yes — for platform stability, security, governance, and commercial alignment.

Data Usage & Rights

How is client data used within AIWorks

Client data is used only to deliver agreed use cases, under strict access controls.

Is client data used to train models?

No, unless explicitly agreed in writing under separate terms.

Can data be reused across clients?

No. Data remains logically segregated and protected.

How is sensitive or regulated data handled?

Through built-in governance, access controls, and compliance mechanisms.

Governance, Risk & Compliance

What governance controls are built into AIWorks?

Auditability, access control, policy enforcement, and traceability are built in by default.

Can governance controls be disabled or bypassed?

No. Governance is mandatory for all AIWorks usage.

How are audit and compliance requirements supported?

Through logging, reporting, and integration with enterprise compliance processes.

Support & Operations

What support is included with AIWorks?

Standard platform support and operational monitoring are included.

Are different support tiers available?

Yes, enhanced SLAs may be offered as add-ons.

Who handles incidents or platform issues?

Platform operations teams manage incidents in line with agreed SLAs.

Commercial Boundaries & Escalation

What types of requests require escalation?

Client-hosted deployments, bespoke models, IP exceptions, or non-standard commercial terms.

What are typical requests that fall outside standard AI/Works scope?

Custom model builds, unlimited usage guarantees, governance opt-outs.

Who approves non-standard commercial or IP terms?

Commercial leadership in coordination with Legal and Platform governance.