

The pursuit of Digital Intelligence (Part 1)

Trends and Insights from a Consultancy Perspective

The Protocol Problem (Part 2)

Leo Salce

The Pursuit of Digital Intelligence



Principal and CEO

AVANT LEAP

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The Protocol Problem



Director of Innovations & AI

AVANT LEAP

Leo Salce

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AVANT LEAP

"The Pursuit of Digital Intelligence

Trends and Insights from a Consultancy Perspective"



Who We Are

AI-powered technology consulting for the AECO industry.

15+

Years AEC
Experience average consultant

20

Production
MCP Servers

400+

Custom
Dynamo Nodes

100+

Custom Apps +
Proprietary IP



AI Integration

MCP servers, RAG pipelines, agentic workflows for the firm's BIM data



Custom Digital Solutions

Digital Twin Platforms, Autodesk Add-ins, Dynamo packages, ACC Extensions — automation for digital practice processes



Digital Strategy + Transformation

Roadmapping, change management, ROI-driven planning



Team Augmentation

Embedded Digital Practice and AI specialists for design team

We digitized the drafting table.
Did we digitize the thinking?

The Jetsons Effect

*Yesterday's science fiction
is today's subscription software.*



3 YEARS AGO

100s of hours
of custom AI development

- Custom workflows for projects like Andiamo and Miral.
- Bespoke code. Weeks of iteration.
 - Significant investment.



TODAY

ONLY \$20/month

Subscription to ChatGPT or Claude

- Same capabilities. Available to anyone. No custom code required.
- The cost of intelligence collapsed faster than anyone predicted.

The barrier isn't technical anymore, it's awareness. What was impossible yesterday is inevitable tomorrow.

THE PURSUIT OF DIGITAL INTELLIGENCE

The Three Stages of Digital Maturity

04

Most firms believe they're at Stage 2.

01

DIGITIZATION

Tools are digital.
Workflows are unchanged.
Paper replaced by pixels.

02

AUTOMATION

Repetitive tasks automated.
Data flows between tools.
Efficiency gains visible.

03







INTELLIGENCE

Systems learn and adapt.
Decisions are data-informed.
Knowledge compounds.

⚠ **Self-assessment gap: Firms consistently rate themselves 1–2 stages above their audited reality.**

Stages of Digital Workflow Maturity: Achieving Digital Transformation in Architecture

A roadmap for evolving workflows to a digitally mature, optimized state.

MATURITY					HIGH ▶
DIMENSION	1 Ad Hoc	2 Emerging	3 Defined	4 Optimized	5 Transformative
 Data	Data siloed in personal drives, local files, email. No naming conventions. No single source of truth.	Some shared drives. ACC partially adopted. Project data accessible but not standardized. Duplicate data across systems.	CDE operational for most project types. Data standards enforced. 50–70% of reports from CDE. Active data stewardship.	CDE is default environment. 90%+ reports from CDE. Real-time data accessible across all systems. Data quality >95%.	Unified data lakehouse with AI-queryable intelligence. Predictive analytics operational. Data as competitive asset.
 Process	Processes person-dependent. No standard workflows. Tribal knowledge drives execution.	Some standardized templates. Key processes documented but not enforced. Automation in isolated pockets.	Standard workflows documented and followed for 70%+ of projects. Automation deployed for high-volume tasks. QA/QC checkpoints defined.	AI-assisted workflows standard for coordination, documentation, and QA/QC. Continuous improvement cycle active. Exception-based management.	Self-optimizing workflows. AI manages routine decisions within guardrails. Human focus on complex engineering judgment.
 Technology	Tools adopted individually. No platform strategy. Software decisions by project/discipline.	BIM platform selected. Cloud collaboration initiated. Integration between 1–2 systems.	Integrated platform stack (CDE + BIM + finance). MCP or API connections between systems. Citizen dev environment available.	Full platform integration. AI copilots deployed in 3+ disciplines. Automated monitoring and alerting. Knowledge graph operational.	Digital twin capability. Real-time operational intelligence. Platform-agnostic data access. External tool marketplace.
 People	Digital skills vary widely. No training program. Knowledge transfer via shadowing.	Early adopters identified. Some informal training. Digital champions emerging in disciplines.	Structured training program active. 15–25% staff using citizen dev tools. AI literacy across disciplines.	30–50% staff as citizen developers. AI tools embedded in daily work. Cross-training across disciplines. Reverse mentoring active.	100% AI-augmented workforce. Engineers operate at 3–5x individual productivity. Innovation culture self-sustaining.
 Governance	No digital governance. No data stewardship. IT operates as break/fix.	Basic IT policies exist. Software licensing managed centrally. No data quality standards.	Digital governance committee established. Data quality metrics tracked. Change management framework active.	Mature governance with quarterly reviews. KPI-driven investment decisions. Automated compliance monitoring.	Governance embedded in tooling. Automated risk detection. Industry leadership in digital practices.
 Financial	No visibility into digital ROI. Technology spend is a cost center only.	Technology spending tracked. Some ROI tracking on major investments. No systematic measurement.	ROI measured per initiative. Automation hours tracked and reported. Budget allocated to digital capability.	Digital initiatives measured as revenue enablers. Margin improvement tracked to specific tools. Utilization gains quantified.	≥1% non-consulting revenue from tools/IP. Digital capability drives premium pricing. Competitive moat established.

73%

**of AI concepts we've evaluated for AEC firms
fall into the wrong quadrant of effort vs. impact.**

The most dangerous thing in technology is not missing a trend ...it's chasing the wrong one.

The Hype Filter

Not all AI opportunities are created equal.

← LOW IMPACT

HIGH IMPACT →

FALSE PROMISES

LOW EFFORT · LOW IMPACT

- Easy to adopt.
- Hard to justify.
- Distracts from real work.

QUICK WINS

LOW EFFORT · HIGH IMPACT

- Immediate value.
- Most firms haven't discovered these yet.

SEDUCTIVE MIRAGES

HIGH EFFORT · LOW IMPACT

- Most dangerous category.
- High cost, incremental gain.
- 73% of evaluated AI.

STRATEGIC BETS

HIGH EFFORT · HIGH IMPACT

- Genuinely transformative.
- Requires investment and time horizon.

What Architects Actually Want AI to Solve

The landscape of problems we hear across every engagement.



DESIGN Design Intelligence

INTELLIGENCE



Parametric Design



Sustainability Analysis



Site Optimization



Space Planning
Design Scenario Validation

Production Automation

PRODUCTION

★ LARGEST REQUEST VOLUME



Automated Documentation



Spec Writing



Sheet Generation

Knowledge Systems

AUTOMATION



Project Knowledge



Tribal Knowledge



Precedent Search

Compliance & Risk



Building Code Compliance



Clash Detection



Model QA/QC

The Holy Grails of AEC AI

09

The hardest problems are not technical. They are institutional.

01



Tribal Knowledge Synthesis

Converting institutional expertise into systems

★ Enrique's talk

02



Automated Design Production

Beyond templates to intelligent generation

03



Sustainability Orchestration

Connecting fragmented environmental tools

04



Conversational Comp. Design

Parametric thinking through natural language

05



API Knowledge Infrastructure

The invisible backbone connecting everything

→ Enrique's talk will show a working solution for #1

Agentic Architecture

From AI that answers to AI that acts.

01



From Chatbots to Agents

AI that doesn't just respond — it takes action across your digital ecosystem.

CHATBOT	VS	AGENT
✗ Responds		✓ Acts autonomously
✗ Single turn		✓ Multi-step chains
✗ Stays in chat		✓ Traverses systems
✗ No memory		✓ Maintains context

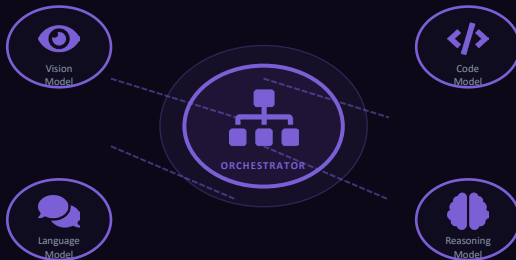
One Q → one A - vs - Full autonomous task execution

02



Multi-LLM Orchestration

No single model does everything well. The future is coordinated intelligence.



Specialist models routing tasks — each doing what it does best

03



Human-in-the-Loop

The goal: amplify the architect's intelligence, not replace it.

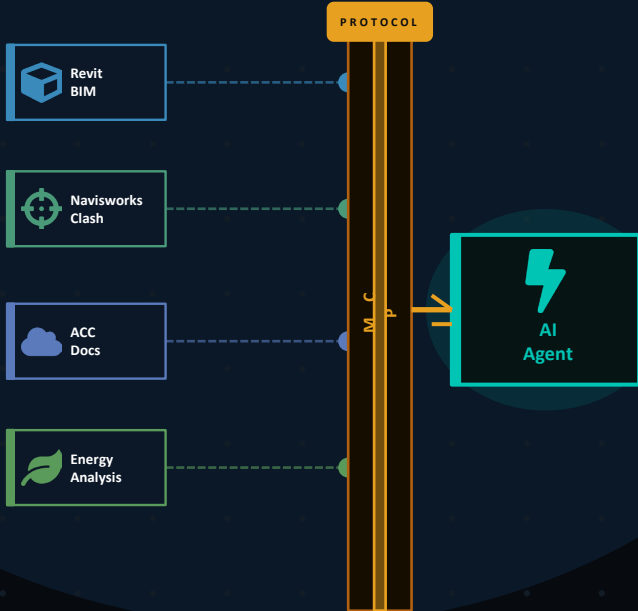


Co-intelligence, not replacement — this is the theme uniting both talks today

The Universal Translator

Model Context Protocol

A common language for AI agents to traverse AEC systems



Connects BIM, analysis, compliance, and documentation — seamlessly

INTEGRATION



Not a product — a protocol that enables unprecedented integration

PROTOCOL



Bridges every siloed AEC system through a single common interface

BRIDGE



The most important infrastructure shift since BIM itself

MILESTONE

What We See from the Front Lines

Patterns from the past 5 years, 300+ firms, and 1000s of files analyzed

7

YEARS

of field data

300+

FIRMS

observed

1000s

FILES

analyzed

17

PATTERNS

discovered

01



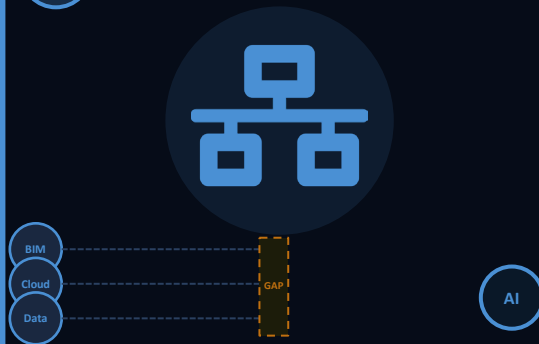
17 patterns identified ↗

Every Firm Is an Unpackaged Product Company

The IP exists inside your workflows. You're solving the same problems repeatedly — but treating each one as custom.

17 distinct product patterns buried in consulting deliverables

02



Missing: MCP · Pipelines · Context

The Gap Between Tools and Intelligence Infrastructure

Firms have BIM. They have cloud. What they don't have is the connective tissue — MCP servers, data pipelines, context architecture — that lets AI traverse their systems.

The missing layer is not software. It's context.

03



Quality of thinking > speed of doing

Faster Execution ≠ Better Strategy

AI makes execution cheap. That makes the quality of your thinking more important, not less.

"Ideas being expensive to implement was actually helping." — veteran engineer

The Strategy Spectrum

There is no single right approach — but there are wrong ones.



FOMO-driven adoption almost always leads to expensive shelf-ware.

Learning from Failure

We learn more from failures than successes.

01 The Shiny Object

Adopted AI without a problem to solve.
Technology looking for a use case.

START WITH THE PROBLEM

02 The Data Desert

Built intelligence on empty infrastructure.
Garbage in, garbage out... at scale.

BUILD THE FOUNDATION

03 The Cultural Firewall

Technical success, organizational rejection.
Nobody used it, not because it was bad.

PREPARE THE PEOPLE

*The hardest problems in digital transformation are not technical. **They are human.***

The Ecosystem Gaps

UNMAPPED

The most valuable opportunities are in the spaces nobody has mapped.

01

API Knowledge Infrastructure



The missing backbone: no standard way for AI to understand AEC software APIs. Every integration is hand-built.



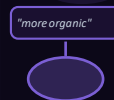
What if AI could natively speak Revit, Rhino, and Navisworks?

02

Conversational Computational Design



Parametric design through natural language. Democratize access to computational thinking.



From grasshopper scripts to spoken intent.

03

Cross-Platform Sustainability



Fragmented environmental analysis tools that don't communicate across platforms.



Energy model ↔ BIM ↔ Structural — still three separate worlds.

04

Institutional Knowledge Upcycling



Converting decades of expertise into living, queryable knowledge systems.



Every retiring principal takes 30 years of knowledge with them.

What's Actually Coming

Three predictions grounded in real patterns, not speculation.

01

NEAR-TERM

MCP becomes standard AEC infrastructure, creating urgency for firms without it.

02

MID-TERM

Agentic workflows move from experimentation to standard delivery pipelines in top firms.

03

LONG-TERM

Firms with digital intelligence won't just be more efficient, they'll make decisions that were previously impossible.

Architecture is approaching an intelligence inflection point. And the firms that embrace that shift first won't just work more efficiently. They will design the future of the profession.

How do we build intelligence into every decision our practice makes?

Most firms think the answer is more software.
But the real answer is *leadership*.

Did you update
the Revit model?!!

Legacy
Workflow

Leadership Decision

Flintstones... but with better GPUs.

Jetsons Architecture Practice.

And the firms that answer it first will define the next era of architecture.

Enrique Galicia

Director of AI and Innovation



AVANT LEAP

*"The Protocol Problem: Bridging Probabilistic AI
and Deterministic Architecture"*





Foundations

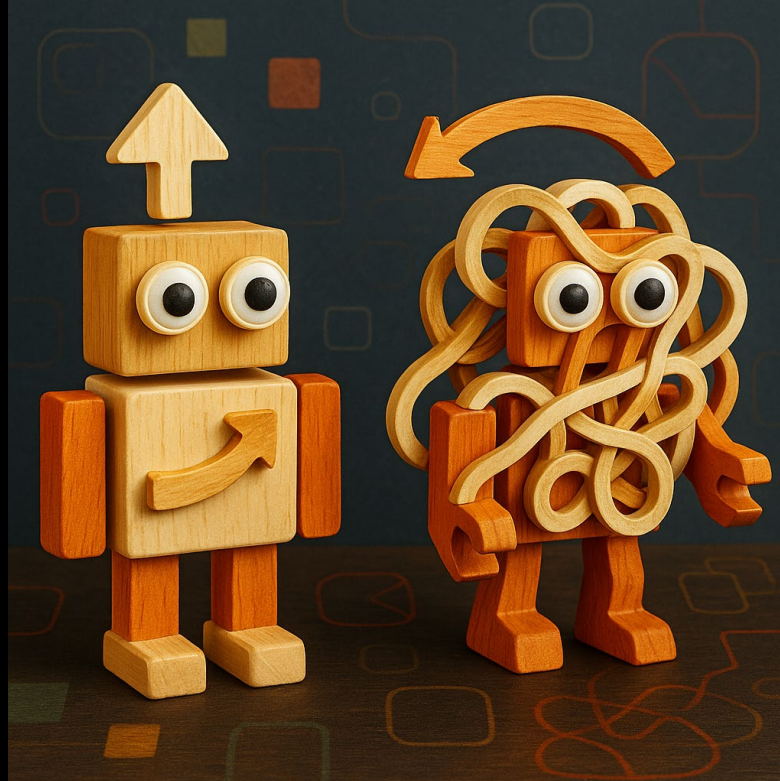
01



Key Point

01

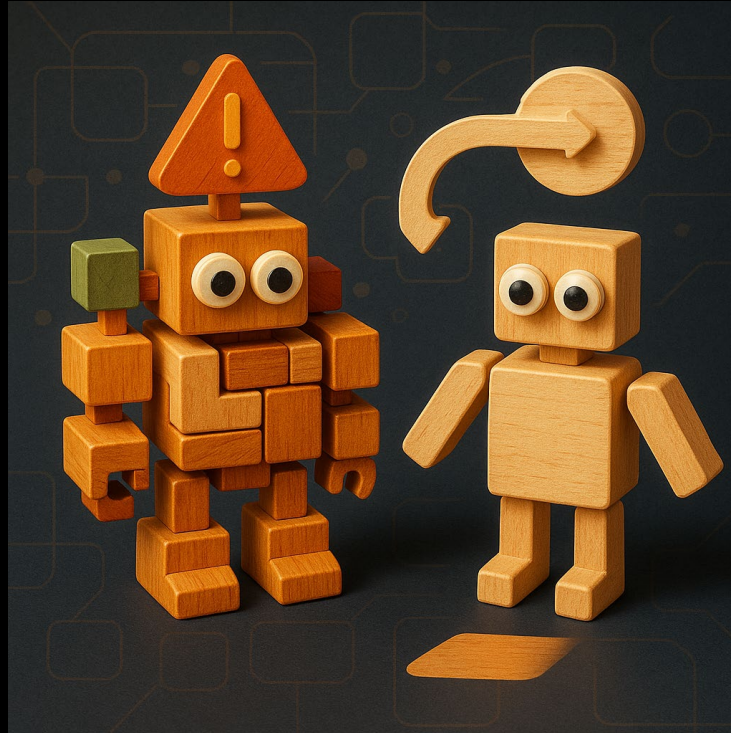
AI is probabilistic Architecture is Deterministic.



Key Point

02

Foundational Structures nurture future Systems



MCP

Model Context Protocol



Model Context Protocol — the missing layer between natural language and precise action.

Context

Preference Files and Guardrails



Interactions with AI are part of a nurturing path of foundations.

Interaction

Training, Checklist and Feedback

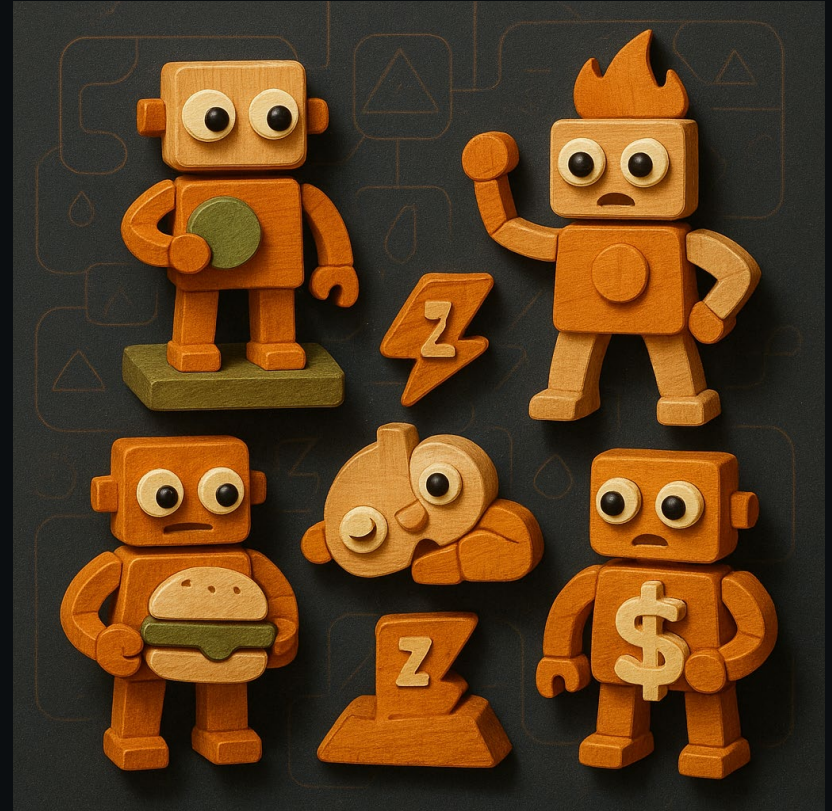


Interactions with AI are part of a nurturing path of foundations.

Key Point

03

How to start growing a system with AI?



🌸 Enrique returns!

11

How can I help you today?



Sonnet 4.6 Extended



</> Code

🎓 Learn

🛠️ Create

✍️ Write

🔥 From Drive

read_file	🔄 🗑️ 🚫
read_text_file	🔄 🗑️ 🚫
read_multiple_files	🔄 🗑️ 🚫
write_file	🔄 🗑️ 🚫
View details edit_file	🔄 🗑️ 🚫
create_directory	🔄 🗑️ 🚫
list_directory	🔄 🗑️ 🚫

Connectors

Connect Claude to your apps, files, and services. Connectors are built by third parties and reviewed by Anthropic for safety. You can also add a custom connector.

Featured All

Search

Desktop

Categories

Microsoft Clarity 12K
MCP Server for Microsoft Clarity

Kubernetes MCP Server 9.6K
MCP server for interacting with Kubernetes clusters via kubectl

ElevenLabs Player 8.7K
Audio Player MCP Bundle with ElevenLabs integration. Generate speech, sound effect...

Filesystem 8.5K
Let Claude access your filesystem to read and write files. ✓

Docling MCP 7.1K
Docling MCP Server - Document processing and analysis capabilities such as creation a...

Enrichr MCP Server 6.7K
Gene set enrichment analysis using Enrichr API with multi-library support

ElevenLabs Agents MCP A... 5.8K
Create and manage ElevenLabs Agents with an interactive UI. Build conversational AI...

Shadcn UI 5.3K
A Model Context Protocol (MCP) server for shadcn/ui components, providing AI...

Profile

Full name



Enrique

What should Claude call you?

Enrique

What best describes your work?

Engineering

What personal preferences should Claude consider in responses?

Your preferences will apply to all conversations, within Anthropic's guidelines.

****Trigger when I say:****

- "vibe code", "use workflow", or "load preferences"

- Or explicitly mention a platform+tier (e.g., "Create an iOS MVP...", "Build a Revit plugin...", "Build an MCP server...", "Make a Dynamo package...")

****Action:****

1. Read: `C:\02_Avantleap\01_Developments\00_Rules-and-Configs\claude-workflows\user-preferences-index.md`

2. Follow the workflow system described there — detect platform+tier, ask pre-flight questions, load the right files

MCP Server

MCP Client

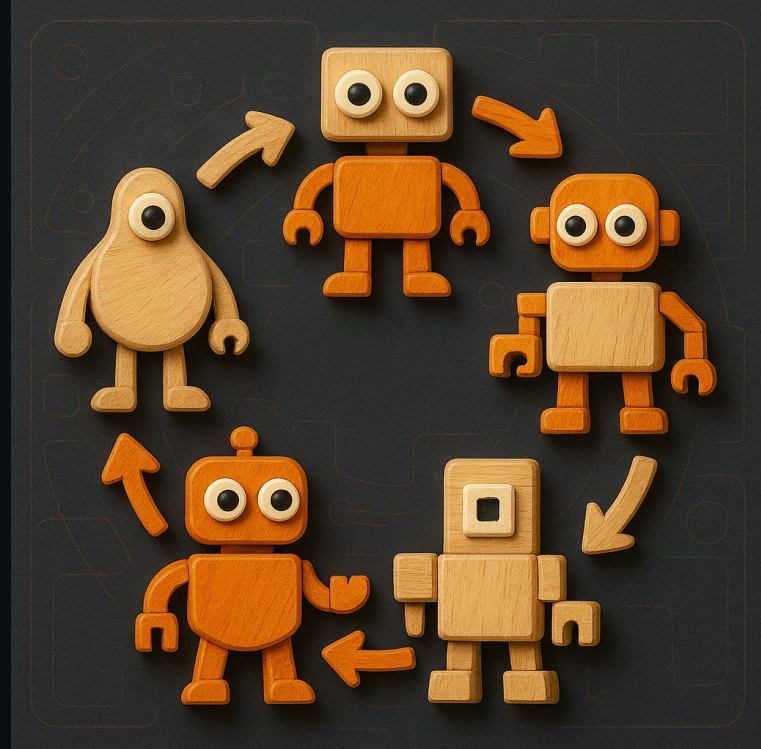
LLM



Key Point

04

Upcycling Knowledge Safe and Sustainable?



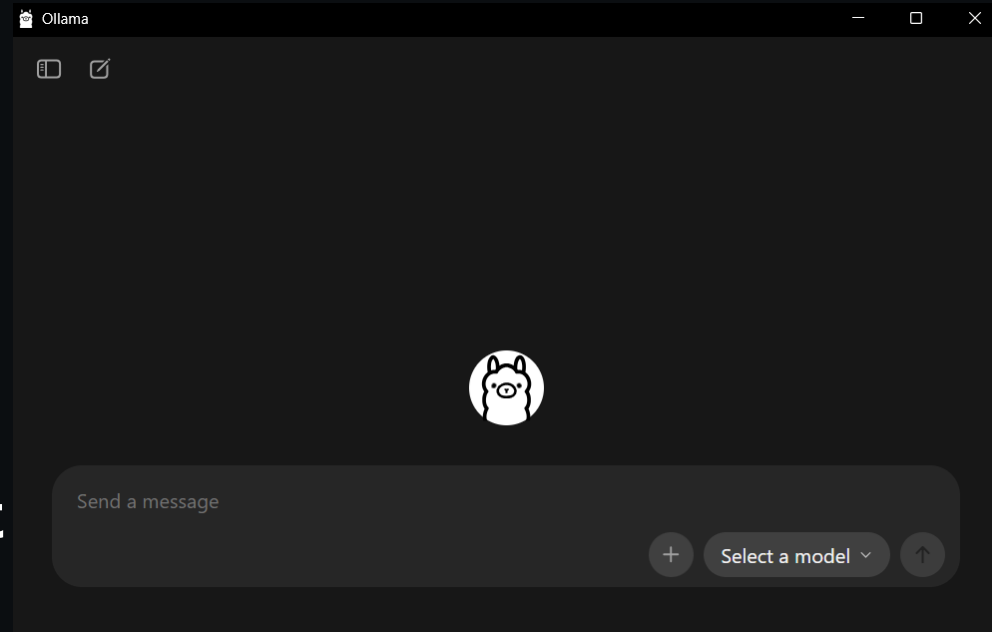
Firms lose institutional knowledge every time a project closes or a person leaves.

The problem is not talent. The problem is that knowledge has nowhere to live.

Upscaling Knowledge

Private LLMS

Grow Physical
Infrastructure and Connect
Local LLMS



Upscaling Knowledge

Use AI to Create Guardrails

With Every Use:
 Capture Lessons
 Learned, build
 Checklists, and
 Reuse Components.

```

## ACTIVATION TRIGGER
Only activate this workflow system when I explicitly say:
- "vibe code"
- "use workflow"
- "load preferences"
- Or explicitly mention a platform+tier (e.g., "Create an iOS MVP...")

For normal conversations, questions, or discussions, **DO NOT activate**. Just chat normally.

---

## STEP 1 – DETECT PLATFORM & TIER

Detect from my request:
- "Create an iOS MVP..." → platform=**ios**, tier=**mvp**
- "Build a Revit Production plugin..." → platform=**dotnet-revit**, tier=**production**
- "Create MCP server..." → platform=**mcp**, tier=**internal** or **production**
- "Build Dynamo nodes..." → platform=**dynamo**, tier=**poc** or **prototype**

**Available Platforms:**
`ios` · `dotnet` · `dotnet-revit` · `dynamo` · `python` · `mcp` · `webapi` · `webapp` · `desktop` · `aps-web`

**Available Tiers:**
`poc` · `prototype` · `mvp` · `internal` · `production` · `saleable`

```

Internal firm's Knowledge:

Standards, project history, and encoded design intent.

Your firm's decisions become the intelligence layer — not a generic model.

Key Point

05

Internal Case Studies

Vibe Coding



Ostacolo Case Study

App Developed originally over 4 Years of functions, 2017-2021

Released as Clash Detection 2024, and still available on the Autodesk App Store

Used to analyze patterns on internal code tests and working processes

Restructured, reframed, and reshaped in just one week using AI-assisted workflows (Agentic Coding + Vibe Coding)

Sequenza and Mostra Case Study

Sequenza 4D planning tool originally built in **2015 with Dynamo**, later evolved into **C#** and expanded across multiple workflows..

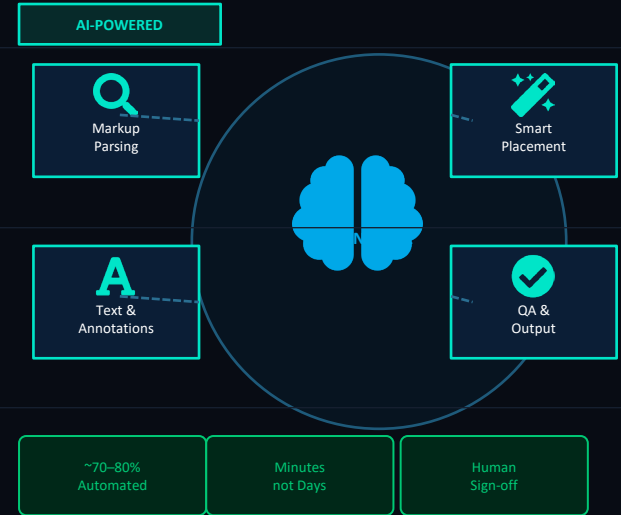
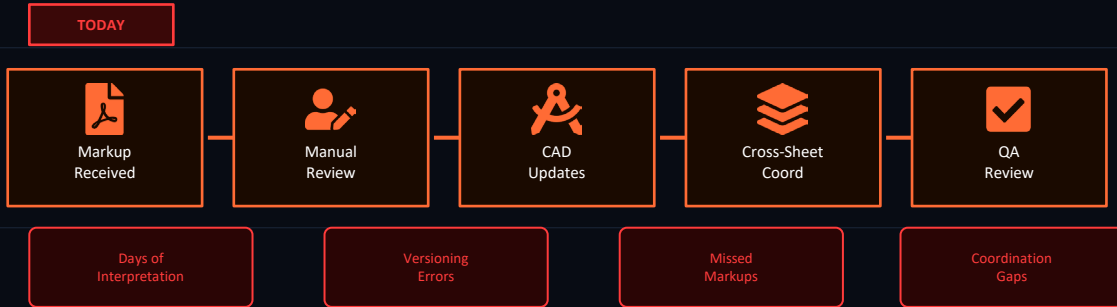
200% improvement in one week using AI-assisted workflows.

Mostra - Originally developed in **two months** before AI-assisted workflows.

Standardized, improved, and extended in just three days.

AI is compressing weeks of development into days, blending deterministic systems with probabilistic intelligence.

From Manual Markups to Intelligent Drawing Updates



From Months of Development to Weeks of Prototyping

TRADITIONAL DEVELOPMENT APPROACH

Phase 0 — Discovery

110 hrs

Phase 1 — MVP (Text / PDF)

680 hrs

Phase 2 — Layout Engine

460 hrs

Phase 3 — RFI / Model Sync

900 hrs

🕒 26 – 35 WEEKS · 2,150+ HOURS · 4–5 SPECIALISTS

ML / CV
PipelineRevit
PluginREST
BackendReact
FrontendPDF
EngineDB +
Storage

AI-ENABLED PROTOTYPE

Week 1 · Markup Parsing + PDF Reader

Week 2 · AI Interpretation + Change Actions

Working
Prototype
✓ ReadyLLM
(Claude/GPT)PDF
ProcessorWeb
Reviewer

~80%

Markup Detection
Accuracy (MVP)Agentic
Workflow

1–2

Weeks to Working
PrototypeIterative
Refinement

3x

Simplified
ArchitectureHuman
Sign-off

Coding Fundamentals



Vibe Coding



MCP Development



I'm speaking at

 **AUTODESK**
DevCon

**Enrique
Galicia**

Director of
Innovations and AI



15-16 April, 2026
Amsterdam,
The Netherlands

Building MCP Servers for AEC: Vibe Coding Approach to Creating Custom Autodesk API Integrations

Preserving human agency while systematically augmenting decision-making.

Architects stay in command. AI amplifies.

Questions?

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Principal and CEO

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Director of AI and Innovation

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Building intelligence infrastructure

Strategy → **Execution**



AVANT LEAP