Beyond Commodity AI: Verticalized Intelligence for Innovation

9.17.26

- Steve Hafif CEO at Cypris
- Marlene Valderrama, Principal IP Manager and Senior Technology Scout at Halliburton

Agenda

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2. **The Enterprise AI Journey**
3. **Where General-Purpose AI Falls Short - Technical Perspective**
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6. **The Intelligence Layer is Where the Value Lives**
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9. **Perspective on Where Enterprise AI Is Headed**
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Introductions



Steve Hafif
CEO & Co-Founder

cypris



Marlene Valderrama
Principal IP Manager & Sr. Technology Scout

HALLIBURTON

The Enterprise AI Journey

Generative AI enterprise adoption, 2022 → 2026

2022 → 2023

Experimentation

Learning how to use chatbots and talk to LLMs.

2023 → 2024

Enterprise Adoption

Accessing approved AI tools and employee training.

2024 → 2025

Workflow Integration

Connecting compant data and AI to everyday work.

2025 → 2026

Agentic Workflows

Delegating multistep tasks with human oversight.

What enterprises learned through this journey

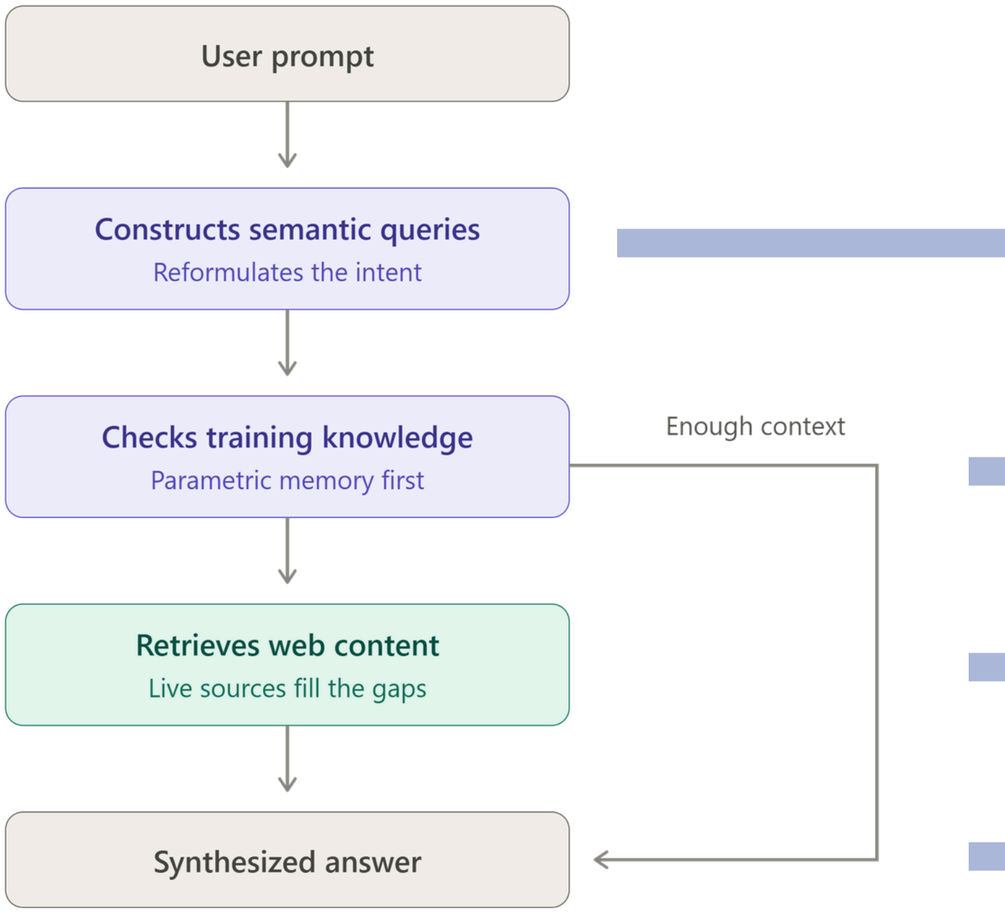
Adoption outpaced maturity

Value depends on integration

Agents expand responsibility

Where General-Purpose AI Falls Short - Technical Perspective

How general-purpose AI harnesses like ChatGPT, Copilot, and Claude construct an answer:



🚨 **Narrow Uninformed Queries**

No native map of technical taxonomies or relationships across company aliases, subsidiaries, chemical synonyms, and domain-specific concepts etc.

🚨 **Stale or Synthetic Data**

Training data ages quickly, content is ungoverned and increasingly AI-generated.

🚨 **The Best Sources are Blocked**

Bot blocking hides critical sources and prevents models from accessing complete database metadata and relationships.

🚨 **Shallow or Hallucinated**

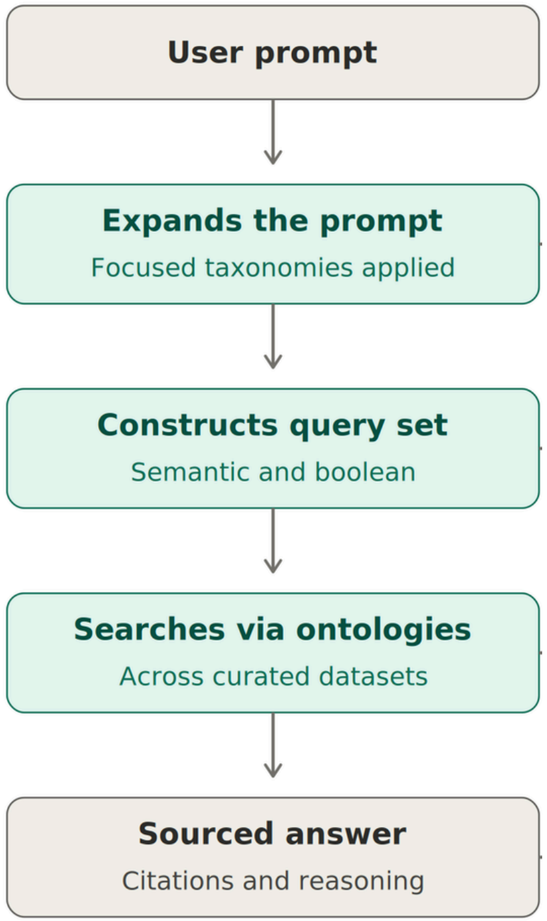
Fluent answers can still rest on thin evidence, making them risky for high-stakes R&D, roadmap, and IP decisions.

Where General-Purpose AI Falls Short - User Perspective

Specialized Context	Models may miss technical meaning and relationships when they lack relevant domain data.
Enterprise Context	Project constraints and prior research may be absent from the information available to the model
Research Workflows	General purpose tools may lack the data connections and research steps needed to ground the analysis

The Vertical AI Difference

The model provides the reasoning. Verticalized AI gives it the domain data and structure to reason with precision.



✅ **Nomenclature Resolved**
Compounds, organizations, aliases, synonyms, and trade names are mapped before search.

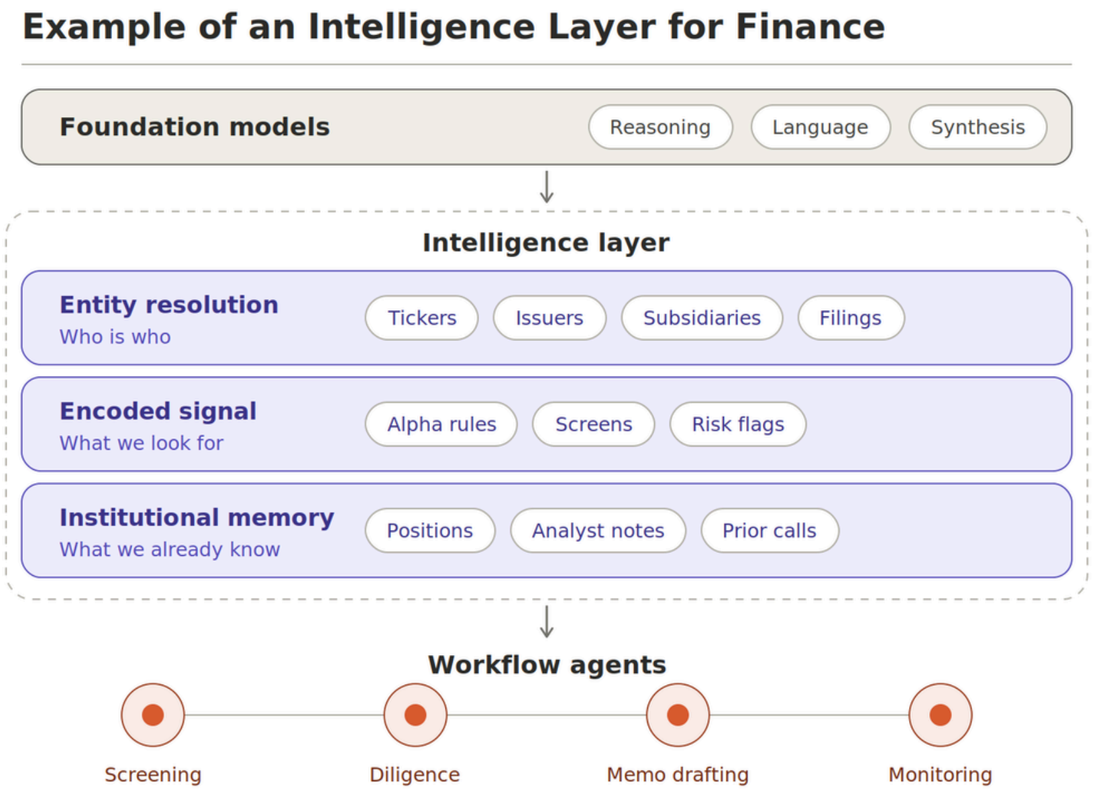
✅ **Focused, High Signal Corpus**
Intentional datasets are built from broad semantic and focused Boolean queries before analysis.

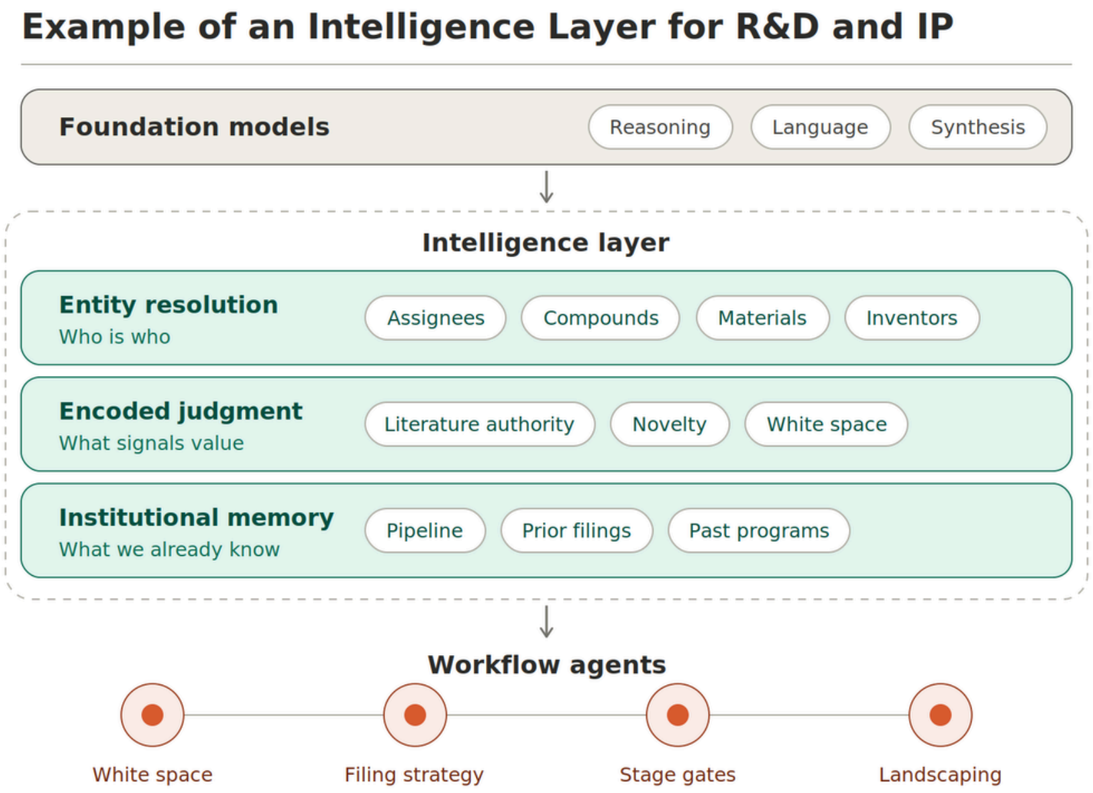
✅ **Navigate Complex Datasets with Context**
Search through bespoke ontologies built for use cases like prior art, white space, and trend analysis.

✅ **Trustworthy Answer and an Auditable Reasoning Path**
Methodolgoies your team can understand, investigate and work with to make high stakes decisions in context

The Intelligence Layer is Where the Value Lives

As the strength of models begin to commodotize enterprises need to focus on developing powerful intelligence layers





Verticalized AI in Practice & ROI

What successful outcomes look like across innovation and R&D workflows

Focused Discovery	Technology shortlists fit project requirements and account for what the enterprise already knows.
Evidence For Decisions	Findings link to technical and patent sources, so experts can assess relevance and uncertainty.
Reusable Research	Teams use the research in stage-gate reviews and preserve the evidence for future projects.

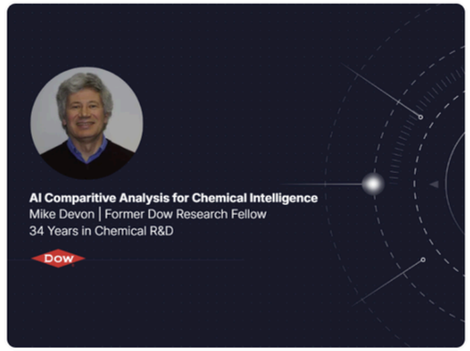
Measure time to a reviewed decision and the effort needed to validate the evidence.

The Difference Matters

> *Michael Devon, a retired Research Fellow who spent 34 years at Dow tested three AI systems against complex, known-answer R&D scenarios. The largest performance gap appeared where technical depth, IP interpretation and roadmap development mattered most.*

AUGUST 26, 2026

Former Dow Research Fellow Compares Cypris, Copilot & Claude for Chemical Intelligence



The prompt:
Investigate alternative scientific and manufacturing approaches for producing hollow particle opacifiers that differ from the conventional styrene, methyl methacrylate and methacrylic acid emulsion routes used by incumbents. *Survey the scientific literature and emerging techniques for novel void-formation mechanisms, alternative monomer or material systems, and different particle architectures. Assess the technical feasibility of these approaches and highlight which directions offer the strongest basis for a differentiated opacifier and a defensible technology strategy.*

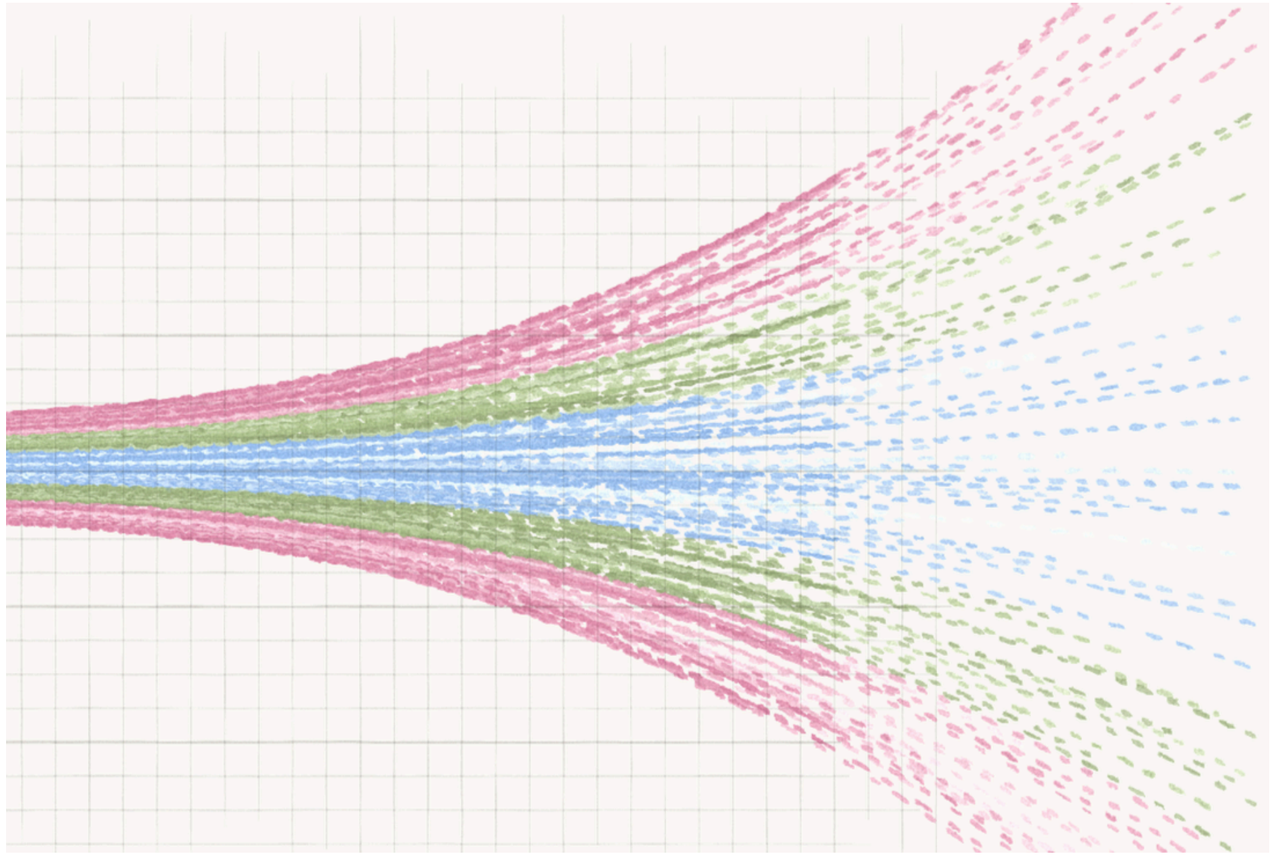
EVALUATION DIMENSION	CYPRIS	CLAUDE OPUS 5	MICROSOFT COPILOT
State-of-the-art technical analysis	Most complete and decision-relevant. Identified important concepts and applications the other tools missed.	Credible but more general and matter-of-fact.	Credible general summary, but limited technical differentiation.
Technical failure modes	Identified particle collapse as a central development risk for hollow particles.	Missed the significance of particle collapse.	Missed the significance of particle collapse.
IP intelligence	Better surfaced technology transfers and the practical structure of the IP landscape.	Missed significant transferred or outdated IP.	Missed technology transfers between companies.
White-space guidance	Produced more specific and technically credible alternative directions.	Offered some alternatives but remained general and provided limited white-space guidance.	Recommendations were the least insightful of the three.
Commercial and adjacent-market context	Only tool to surface meaningful commercial information and the thermal-printing application.	Limited commercial context.	Limited commercial context.
R&D roadmap development	Produced the clearest and most actionable roadmap suggestions.	Primarily summarized the available evidence.	Offered limited guidance beyond the initial summary.

Where Enterprise AI Is Headed

Where Enterprise AI Is Headed: The Tranformation of the Knowledge Worker

Two weeks ago, Anthropic published an economic report exploring what the future of work could look like, based on Claude adoption data.

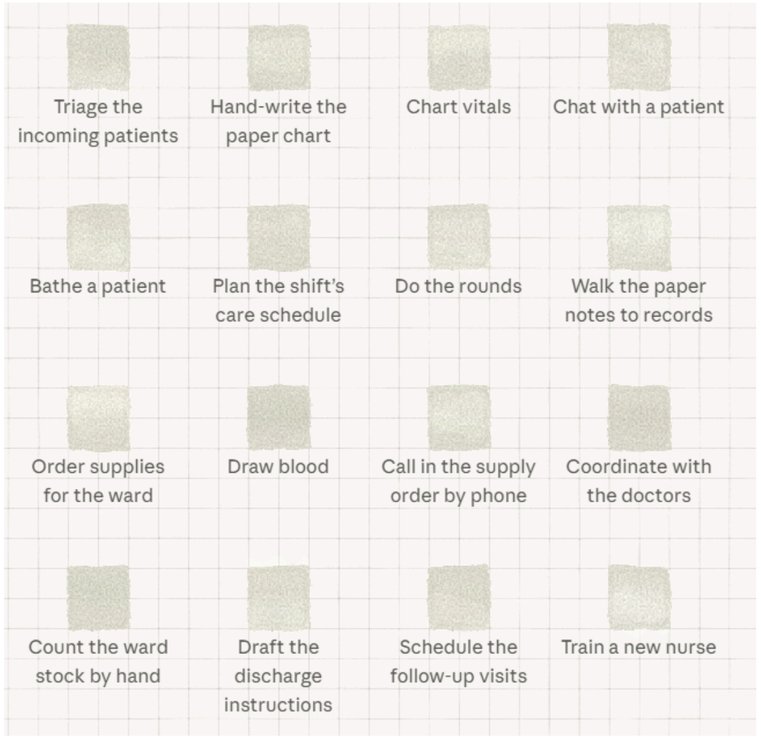
The central theme: **knowledge work is being transformed by AI. Over time, roles won't simply disappear, but evolve as people take on new responsibilities alongside increasingly capable AI systems.**



The Great ‘Task’ Migration

Take a day in the life of a nurse, for example

Today: a familiar set of tasks



With AI: the task mix begins to shift



Over time: entirely new responsibilities emerge



Where Enterprise AI Is Headed: From Knowledge Work to AI Orchestration

As AI agents take on complete workflows, knowledge workers will move toward higher-leverage roles focused on directing, governing, and improving those systems.

Vertical AI Agents Run the Workflow

Agents operate inside native applications or enterprise AI environments, executing specialized workflows end to end.

Examples:
Prior art
White space
Technology scouting
Competitive intelligence

A New Responsibility Emerges: **AI Orchestration**

Knowledge workers increasingly move from performing the workflow to orchestrating the agents that perform it.

They will define:
What agents can access
How agents should operate
Where humans stay in the loop
How quality and performance are measured

The quality of the orchestration will increasingly determine the quality of the outcome.

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Build an AI workforce for R&D

Prior Art	*Competitive Intel*
Tech Landscaping	*White Space*
Regulatory Intelligence	*Chemical Intelligence*
Market Analysis	*Cross Industry Mapping*
Tech Scouting	*Competitor Monitoring*

IRI attendees receive complimentary trial access

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INNOVATION RESEARCH INTERCHANGE

Accelerating Value Creation

Any Questions?

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Thank you for your time

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