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BETWEEN MINDS — REPORT 01

The Hidden Structural Failure in the Agentic Market

Why most multi-agent systems struggle — and why the future will be built around work, not applications

Most agentic design firms are not failing because they lack intelligence. They are failing because they are trying to solve a next-era coordination problem with last-era software assumptions. That is the uncomfortable truth that the market has not yet confronted.

Many of the people building so-called “multi-agent systems” today are exceptionally bright. Some advise major enterprises. Some can design elegant interfaces, compose compelling prompts, wire together tools quickly, and ship polished demonstrations in remarkably little time. But almost all of them remain rooted in the historic centre of gravity of software itself: applications, workflows, records, screens, services, and process automation. They are modernising the surface while preserving the old substrate.

That is why so many of these systems become brittle the moment complexity becomes real. The problem is not that they are building poorly within their inherited paradigm. The problem is that the paradigm itself is no longer sufficient.

> **People used to bridge the gaps. Now Agentic systems will begin to change that position.**

Enterprise work has always been more complex than the systems built to represent it. Traditional software got away with flattening that complexity because human beings absorbed the ambiguity, improvised around system gaps, and carried institutional knowledge in their heads, teams, side channels, and local workarounds. Classic enterprise software was not designed to model work in its full relational, conditional, multi-party, stateful reality. It was designed to store records, manage transactions, automate portions of workflows, and standardise bounded process islands.

That was enough for a long time. The moment you try to coordinate multiple agents, multiple systems, multiple decision layers, multiple policies, and multiple states around the same enterprise reality, all of the hidden structural weaknesses of the old stack become visible simultaneously.

Further reading

We recommend you consider:
1: Of (AI) Machine and Human (Labor): An Integrated Nexus of Work Operating System Architecture for Orchestrating Human-AI Collaborations

THE REAL QUESTION THE MARKET IS NOT ASKING

The actual question that matters: what is the shared reality that all of these agents, systems, and humans are coordinating over?

Most of the market does not have a strong enough answer to this. They have prompts, LLMs, APIs, tool registries, orchestrators, role definitions, memory stores, and workflows. What they do not have is a strong enough structural substrate for coordinated reasoning and action.

A lot of firms still think orchestration means chaining behaviours together. One agent does one thing, hands off to another, a tool is invoked, a human reviews. This can look impressive in a controlled demonstration. But it is still fundamentally choreography layered on top of application-centric design.

The orchestration gap

These systems may know who goes next, but they do not know deeply enough what the work actually is, what state it is in, what constraints govern it, what other work it depends on, what decisions authorise it, what policies bind it, or how coherence is maintained when many participants touch the same reality.

That is not orchestration in the deeper sense. It is routed behaviour. Real orchestration begins when the object of coordination is no longer the software step — but the work itself. That is a different worldview entirely.

> **Orchestrate, Don’t Automate. The distinction is not cosmetic. It is architectural.**

The primary architectural question is no longer which application owns this process. It becomes: what work exists here? What tasks constitute it? What states can it enter? What dependencies constrain it? What capabilities are required to move it? What authority structures bind it? What evidence explains why it moved the way it did?

Once those questions become primary, the inherited software stack begins to look strangely indirect. Applications, services, prompts, and workflows become execution surfaces and interfaces — rather than the true organising centre of the architecture. That is the point many smart agentic firms still have not crossed.

THE HISTORIC SOFTWARE MODEL AND ITS LIMITS

The historic software model follows this sequence: define application boundaries, establish records and data models, develop process flows, design screens and user journeys, set up integrations, and then incorporate automation. This model is application-centric, process-centric, transaction-centric, and module-centric.

Even when companies discuss “platforms,” the main focus remains similar: the application controls the domain, the workflow drives the motion, the process determines the path, and the work takes a back seat. That inheritance is now a liability.

Enterprise work does not fit neatly within application modules. It spans across departments, systems, roles, policies, time frames, escalation channels, exception paths, and resource limitations. It is not confined by a single workflow. It cannot be reduced to just one process. Instead, it is a topology of tasks, states, handoffs, dependencies, triggers, constraints, capabilities, exceptions, decisions, resources, and outcomes interconnected dynamically.

We recommend you consider researching:

1] Waterfall methods for the controls necessary for Guardrails and Agile methods for the iterative way to experiment with Agentic capability.
2] Waterfall methods for developing Human/AI Agent interactions where tasks are deterministic and staged.
3] Agile where work is more heuristic and problem based.

Where the real work has always lived

Human organisations have always known this intuitively. That is why much actual work takes place in spreadsheets, inboxes, meetings, chats, undocumented escalations, local workarounds, tribal knowledge, and judgement calls. The official systems capture part of reality. Humans carry the rest.

Now, the market tries to shift that burden onto agents without first restructuring the fundamental framework those agents are meant to operate within. That is why the systems crack and ultimately fail. The missing structural layer is not a minor inconvenience; it is the core design flaw of this generation of agent-based products.

WORK MUST BECOME THE NUCLEUS

This is where the architectural inversion that defines NowOS™ begins. The market still largely builds software first and expects work to conform to it. The stronger model is the reverse: work must become the nucleus.

Not systems. Not workflows. Not dashboards. Not applications. Work. That means tasks at the centre, task states at the centre, dependencies at the centre, traces at the centre, handoffs at the centre, work units at the centre. Everything else exists in relation to that core.

his is not just superficial decoration. It is a fundamentally different architectural foundation. Instead of the traditional sequence of systems leading to processes and then to tasks, the model redefines the flow as work leading to tasks, then to capabilities, and finally to systems. That reversal transforms everything. Applications cease to be the masters of reality and

instead become surfaces for execution. Policies transform from scattered conditionals into explicit governing frameworks. Capabilities are no longer hidden in job descriptions or API documentation but become accessible constraints. Facts are no longer flattened objects; they are canonically anchored realities with multiple valid projections.

The atomic task as the foundational engineering object

At the operational level, this inversion boils down to a single fundamental unit: the atomic task. An atomic task is the smallest meaningful, assignable, and measurable unit of work — the engineering object that NowOS™ is built on around.

Atomic task decomposition is more than just an analytical task. It is essential for everything that comes after: for governance that understands what it oversees, for agents that know what they are carrying out. Without focusing on the atomic task as the core, every other part of the architecture relies on assumptions rather than solid structure. The complex orchestration that enterprises need — multi-agent, cross-system, policy-constrained, stateful, explainable, and outcome-sensitive — cannot be effectively governed without it.

MULTI-AGENT ORCHESTRATION IS NOT A PROMPTING PROBLEM

This is the fundamental misconception at the core of the market. Most people believe the difficult question is how to motivate agents to work together. The more important question is what shared operational reality they are collaborating over.

If that shared reality is not structurally represented, then the agents are not genuinely coordinating. They are merely exchanging interpretations. This results in drift, duplication, contradiction, weak state coherence, fragile handoffs, poor explainability, policy breaches, and fragile escalation behaviour.

A skilled agent builder may still overlook this issue because the current toolset allows for significant progress without addressing the core problem. You can create impressive systems using role prompting, tool access, workflow routing, JSON schemas, memory retrieval, and planner-executor loops. However, once the system becomes multi-agent, cross-system, policy-constrained, stateful, explainable, enterprise-critical, and outcome-sensitive, those mechanisms alone become inadequate.

> **Without a governed structural substrate, multi-agent systems become “coordination by interpretation” rather than “coordination by structure”.**

This is why a graph-governed structure becomes essential at a certain level of orchestration complexity. Not because it is stylish. Not because semantic technology appears sophisticated. It is important because complex multi-agent orchestration requires an externalised shared reality. Multiple actors must coordinate over entities, relationships, states, tasks, dependencies, policies, roles, capabilities, authority, outcomes, and evidence. If

those structures remain implicit, every agent is forced to rebuild them locally from text, prompts, partial context windows, fragile heuristics, inconsistent object names, and disconnected workflow states.

THE NOW OS™ ARCHITECTURE: A DISCIPLINED COLLECTION

The answer is not a single giant graph encompassing everything. That simply represents another form of structural failure. The correct approach is a graph-driven collection focused on work, with only the necessary supporting families to make work clear, manageable, operational, optimisable, and understandable.

In NowOS™ terms, this translates into four operational graph families:

- the Actor Graph, which captures who or what can participate through roles, skills, capabilities, and agents;
- the Execution Graph, which maps where work executes across systems, APIs, entities, and integrations;
- the Control Graph, which governs and constrains through policies, decisions, authority, escalation, and compliance;
- and the Optimisation Graph, which tracks how work improves over time through outcomes, KPIs, resources, bottlenecks, and learning signals.

One fact, many governed projections

A critical architectural distinction separates NowOS™ from loosely connected agent frameworks: the principle of one canonical fact, many governed projections. A meaningful enterprise fact is never simply one thing in one place. A task assignment, for instance, is simultaneously a work event, an actor-capability match, a policy-constrained decision, a system-executable allocation, and an optimisation-relevant move.

If you model that as one flat object, you lose precision. If you duplicate it across multiple graph families, you lose coherence. The right answer is one identity anchor with multiple graph-specific manifestations, explicit bindings that preserve coherence, and contextual realisation of the relevant manifestation when needed. That is one of the clearest distinctions between a serious orchestration substrate and a loosely connected agent framework.

WHY MOST AGENTIC FIRMS STILL MISS IT

Because they are still anchored to their historic domain roots. They come from app design, product design, workflow software, automation tooling, prompt engineering, systems integration, or consulting transformation. All of those traditions produce useful skills. None of them, by default, force a person to model enterprise reality as a work-centred, graph-governed, multi-perspectival system.

So even very smart people can be deeply advanced in their old domain and still underdeveloped in this one. They hear “knowledge graph” and think semantic web, metadata, ontology tooling, data integration, governance software, academic modelling. They do not immediately hear: the shared operational substrate required for complex multi-agent orchestration.

That is the leap. And once you see it, the weakness of many existing agentic systems becomes obvious. They are orchestrating over insufficient structure. They are relying on prompts, workflows, local memory, tool selection, and application logic to do the work that should really be done by canonical identities, state topology, bounded ontologies, governed fact coherence, cross-graph reasoning, policy and authority structures, and provenance-aware execution. That is why their systems are often impressive but unstable.

THE REAL SHIFT & A STACK INVERSION

What is happening here is not just a product idea. It is a stack inversion. Most of the market is still doing software first, apps first, workflows first, and orchestration second. The stronger model is work structure first, graph-governed reality first, and software as one execution surface within that reality.

> **The organisations that win will not simply be the ones with more agents. They will be the ones with the strongest structural substrate for coordinated reality.**

If executed correctly, this architecture generates power on three levels simultaneously. Product power: you are not merely creating another workflow product or agent shell; you are defining the very coordination substrate. Architectural defensibility: you possess sharper mechanisms than the generic language of AI platform, agent orchestration, or workflow automation. And IP power: the innovation resides in the structural interaction model — work as the primary nucleus, supporting graph families with bounded roles, a single fact identity with many governed projections, and graph-governed reasoning over enterprise reality.

CONCLUSION: THE FOUNDATION THE MARKET STILL HAS TO BUILD

Most agentic design firms are still trapped inside legacy software assumptions. They are trying to solve a next-era coordination problem with an inherited architecture built for applications, workflows, records, transactions, and process containers. That stack was never designed to support the full reality of multi-agent coordination, cross-system execution, policy-constrained decisioning, stateful work movement, canonical fact coherence, or explainable enterprise orchestration.

The outcome is a market filled with impressive demonstrations built on an inadequate foundation. The alternative is a disciplined, work-focused operating framework where work is central, support graph families exist solely out of operational necessity, meaningful enterprise facts retain a single identity with many governed projections, logic prioritises structure rather than compensating for its absence, ontology precedes routing, and provenance and bindings maintain coherence across different contexts.

That is not a small improvement on what exists today. It is a different foundation.

Most agentic design firms are not failing because they are not bright enough. They are failing because they are still rooted in the historic way software has always been developed. The future will belong to those who redesign the substrate itself.

> **NowOS™ is built on the premise that enterprise work must become structurally legible before true multi-agent orchestration can become governable, explainable, and durable.**

ABOUT BETWEEN MINDS

Between Minds is the intelligence publication from Nexus of Work, explaining the new world of hybrid working between humans and AI agents, with NOW OS™ at the core. The publication spans Reports, News dispatches, a bi-weekly Newsletter, Blog posts, and Podcast conversations — united by a single editorial mission: to make the architecture of the future of work structurally legible for the people who have to build it.

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